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### THOUGHTS ON GENERAL AND CARDIAC THERAPY.

President's Address before the Burlington Clinical Society, Nov. 29, 1895.

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During the last quarter century remarkable advancement has been made in every department of medicine. While in the realm of therapy, advancement toward scientific accuracy has perhaps hardly been in keeping with the general progress, still modern therapy is becoming one of the more exact branches of medicine. It is not based entirely upon empiricism, as was formerly the case, but is establishing itself upon a basis which may be called scientific or rational. In treating disease empirically, a certain remedy is used because it seems to have been valuable in treating the same disease or conditions. I do not deny, or wish to under-estimate, the value or success of such treatment in many cases, but would emphasize the fact that the method is anything but scientific. A system of scientific medication must be founded upon a knowledge of the natural history of the diseases to be treated, and of the agents to be used. Or more accurately, scientific therapy must be based upon a knowledge of physiology, pathology and materia medica. This implies a knowledge of physiologic effects of drugs, and their action upon healthy states and conditions, and of the indications for treatment, based upon clinical and post-mortem observations of the natural history, that is, the cause, course and results of diseased states and conditions, as well as a knowledge of the physical and chemic characteristics of remedies. I am aware that we are at present unable to base all our therapeutic methods upon this scientific basis. But as our knowledge of pathology and the natural history of disease advances, I believe there will be a corresponding advance in scientific therapeutics. Every physician possessed of the truly scientific spirit and equipped with all the knowledge available along the lines above indicated, will hardly be satisfied with what are known as shot-gun prescriptions, or with happy combinations, but will select his therapeutic agents with an eye to the good of his patient and the honor of his profession.

With a deeper insight into physiology and pathology we shall surely learn more of the value of what may be styled physiologic remedies, and place more reliance on a proper application of air, food, water, rest and exercise. If we recognize our dependence upon the *vis medicatrix naturæ*, and learn to make a more intelligent use of scientific and of physiologic remedies, we ought certainly, as a natural result, to abandon any allegiance we may have formed with polypharmacy, and also in a great measure with symptomatic therapeutics. To illustrate, let me call your attention to the symptomatic treatment of typhoid fever by modern antipyretics, and by modern antiseptic remedies. With what enthusiasm has one and another physician lauded the use of antipyrin, phenacetin or acetanilid in reducing the temperature and ameliorating the symptoms in this disease! But to-day we are well awakened to the fallacy of considering hyperpyrexia the principal destructive agent or process, and the coal-tar derivatives are practically abandoned, as being not only useless, but actually dangerous. What is known as intestinal antisepsis is much in vogue at the present time. We are asked to believe that naphthol, salol, zinc sulpho-carbolate, bismuth salicylate, hydrogen dioxid, sulphur, etc., administered at intervals of two to four hours, will disinfect or render aseptic the mucous membrane of the intestinal canal, and destroy the pathogenic micro-organism which is the cause of the disease, or the toxins which are generated thereby. This treatment is supposedly based upon the germ theory of disease. Suffice it to say that thus far none of its advocates has done more than to advance their claims; they have proved nothing. The drug has not been discovered which shortens by a day the course of the disease.

Allow me to call your attention briefly, by way of contrast, and to illustrate the difference between empiric or symptomatic treatment and what I have called scientific treatment, to a remedy, a physiologic remedy, which has established itself firmly in the therapeusis of enlightened medicine the world over. I refer to the Brandt method of balneo-therapy. I take pleasure in quoting the following from an eminent authority[1] as to its effects: "The rationale of the bath is so simple that it appeals to our best judgment at once. We have an overwhelming of the nerve centers by the products of infection. The shock and the subsequent stimulus to the cutaneous surfaces are conveyed to the nerve centers, and thence reflected to the heart, lungs and other organs. Observations at the bedside at once renders these effects patent. The first effect is a refreshment, an enlivenment of the cerebrum. The eyes are opened; the face loses its apathetic stare; consciousness returns after one or more baths; the inspiration is deepened; expectoration is facilitated; the widening of the peripheral vessels and the stimulation of their coats relieve the heart; blood pressure is increased and the laboring organ becomes as quiet as does a sea-tossed ship in the hands of a skilled mariner. The secreting glands are aroused to activity. Moreover, the temperature is reduced, not so violently as by medicinal agents, but more definitely, more in accord with normal tendencies. . . . . It has been recently shown by Thayer, in the Johns Hopkins laboratory, that the leucocytes are more than doubled after a Brandt bath. On the other hand, the destructive

[1] Simon Baruch.

effect of medicinal antipyretics on the leucocytes, their inhibition of excretion of products of tissue change and their effect on the heart have been again and again demonstrated." I believe that one of the greatest improvements in our methods of treatment, which may result from what I have styled scientific medication, will be the withholding of remedies of uncertain value, in other words, less medication. I do not say that scientific medication means no medication, but I believe that as our skill in diagnosis increases, our faith in polypharmacy will decrease.

With these remarks on therapy in general, I wish briefly to call your attention to a branch of the subject in which there seems to have been considerable advancement toward scientific precision, viz., cardiac therapy. I venture the statement that there is no department of therapeutics in which knowledge is so exact as in that relating to cardiac disease. Our knowledge of the action of the heart in normal as well as in pathologic conditions, ought to tell us why and under what circumstances a given remedy may be useful, provided we know its physiologic effects. The principal remedies which directly affect the heart and blood vessels are digitalis, strophanthus, strychnia, spartein, convallaria, caffein, gloncin, aconite, veratrum viride, opium, bromids and ergot. Let us briefly review the physiologic action of some of these remedies, when administered in medicinal doses.

Digitalis stimulates the motor ganglia of the heart, increasing the force of the ventricular contractions. By stimulating the inhibitory fibers of the pneumogastric, it lengthens diastole, thereby giving time for the cavities to receive more blood. It also acts upon the vaso-motor ganglia in the medulla, causing contraction of the arterioles and thereby increasing arterial tension. It is a vascular stimulant raising arterial pressure, and steadying the heart by lulling it into long diastoles. Is digitalis a cardiac tonic as well as stimulant? It certainly increases the nutrition of the heart muscle by supplying it liberally with blood. The coronary arteries fill during diastole and when the heart is acting powerfully and steadily under the influence of digitalis, the increased volume of blood swells the aorta, which, in turn by a mighty recoil, fills the coronary arteries and carries food to every part of the heart.

Strychnia stimulates the vaso-motor centers, constringing the capillaries and causing an increase of arterial tension. It also stimulates the vagus, inhibiting cardiac contractions. Thus we see it has a double action in slowing the heart.

Cocain affects the vaso-motor centers and the cardio-motor ganglia, increasing arterial tension and the force of the heart's action.

The action of belladonna is to increase the force and the frequency of the heart's action by stimulating the cardiac ganglia and by paralyzing inhibition. It also raises the blood pressure through capillary contraction, due to vaso-motor stimulation.

Ergot, by stimulating the vaso-motor ganglia, decreases the caliber of the arterioles and produces a marked increase in arterial tension, thereby causing the heart's action to become slower. It also acts on the unstriped muscular fibers in the arterioles, aiding their contraction. All the remedies thus far considered, viz., digitalis, strychnia, cocain, belladonna and ergot may be classed as vaso-constrictors.

Aconite, by lowering the action of the cardio-motor ganglia, lessens the force of the systolic contractions and by stimulating the vagus, lengthens the interval between the beats. It also dilates the peripheral vessels, probably through vaso-motor depression, thereby lowering blood pressure and slowing the heart.

Veratrum viride depresses the vaso-motor centers, dilating the vessels and reducing vascular tension. By a direct effect upon the heart and its contained ganglia it lessens the force and frequency of its pulsations.

Glonoin increases the energy and rate of the heart's contractions and lowers vascular tension by widening the blood paths. The former is done by directly stimulating the heart, the latter by its action on the muscular coats of the arterioles, and not by depression of the vaso-motor centers. Aconite, veratrum and glonoin may then be classed together as vaso-dilators, but with this difference in their action, while aconite and veratrum depress the heart's action, glonoin increases it.

Strophanthus slows the heart's action, lengthens diastole and increases the force of the muscular contractions, thereby raising arterial pressure, but does not affect the caliber of the vessels through the vaso-motors.

Convallaria, by direct action on the heart, lessens the frequency and increases the force of systole, thus raising arterial pressure. It does not affect the vaso-motors or the pneumogastric.

Caffein stimulates directly the heart, increasing its contractions in force and frequency. It causes dilatation of the arterioles, not by vaso-motor depression, but by an action upon the intra-vascular nerve ends (Semmola). Large doses affect the vagus, decreasing the number of systolic contractions.

Cactus shortens and increases the energy of systole, raises arterial pressure and shortens the intervals between the beats. Under its use the pulse becomes quicker and stronger.

Spartein primarily increases the pulse rate, and the force of the heart. This increase of the heart's action is soon followed by a decrease of the same. The augmented rate is due to an action of the drug on the heart's muscle or its ganglia, and the decrease to stimulation of the cardio-inhibitory centers. Spartein increases the blood pressure by its action on the heart and by stimulating the central vaso-motor system, and subsequently decreases it by a depressing effect through the same channels.

Thus we see that strophanthus, convallaria and cactus have no appreciable effect on the caliber of the vessels, while the effect of caffein and spartein in this direction is less marked than is that of the drugs we have classed as vaso-constrictors. The affect of opium is to stimulate inhibition, producing a slow and full pulse with increased arterial pressure. Systole and diastole are both lengthened. Bromids lessen the force and frequency of the pulse, as well as arterial tension. It is claimed by Hammond that bromids produce contraction of the arterioles of the brain, thereby causing cerebral anemia. In the study of cardiac therapeutics it is well to bear in mind that the heart is a double pump with normal valvular insufficiency on the right side and with perfectly closing valves on the left side; that the principal resistance to the flow of blood is in the arteries and arterioles, and not in the veins; that the capacity of the veins is double that of the arteries, and that the abdominal vessels when dilated are capable of holding

all the blood in the body. By the use of the vaso-constrictors we increase arterial tension, and as a result send an increased quantity of blood through the coronary arteries, thus improving the nutrition of the heart muscle. In a dilated heart without compensatory hypertrophy, we may, by increasing peripheral resistance and keeping it just within the power of cardiac contractions, bring about hypertrophy of the left ventricle, and thus restore the circulation to a nearly normal condition. This has been proved by Oertel. The effect of the vaso-constrictors may be carried too far, and so narrow the arterioles, as to send the blood so rapidly through the capillaries as to cut off nutrition from the heart. The administration of nitro-glycerin, which has the power of dilating the capillaries, will, however, remedy this over-contraction. The vaso-constrictors increase peripheral resistance and lower the rate of the heart's action. The vaso-dilators, on the other hand, decrease peripheral resistance and lower the rate and the power of cardiac contractions.

Now the question arises, what working conclusions are to be drawn from these considerations? Let us try for a moment to apply the above data to some of the conditions which we daily meet. In mitral stenosis we have at the mitral orifice an obstruction to the free flow of the current of blood from the auricle to the ventricle. The orifice being narrowed, the auricle can not pump the normal quantity of blood through it, in the time allotted, and in an attempt so to do, the heart works at an increased rate. Dilatation of the auricle follows, and there is a stasis of blood on the venous side of the heart while the vascular tension is lowered on the arterial side. What must be done to help that heart? We must increase the power of the ventricular contraction in order to overcome the effect of the dilatation, at the same time that we lengthen diastole, to give the auricle time to empty itself. We must also increase the blood pressure in the arteries for the benefit of the coronary circulation, and must work the blood over from the venous to the arterial circulation. If our findings in the physiologic action of drugs are correct, here is a field for the use of either digitalis, strychnia, strophanthus, spartein, convallaria or ergot, or a combination of two or more of them. In regurgitation at the mitral valves, we have the conditions above noted, with the addition of eccentric hypertrophy of the ventricle. Such a heart may be in great distress, putting in thirty to fifty extra beats per minute, with the veins full and the arteries empty. Systole is weak and diastole too short for the ventricle to fill with blood. The indications are plain; shorten and strengthen systole and lengthen diastole. To do this we must turn to the same remedies mentioned in speaking of mitral stenosis. Here is an opportunity to use the full physiologic effect of digitalis. Having secured that effect, having restored the equilibrium of the circulation it is probably better to combine glonoin with the digitalis, in order to cut out the vaso-constrictor effect of the latter. In some cases a combination of ergot, for its vaso-motor effect, with spartein or strophanthus, will accomplish all that is desired. The other drugs mentioned in connection with these lesions are valuable and play an important rôle in cardiac therapy, but having pointed out the general indications for their use, we will not attempt to do more at the present time. In aortic stenosis, so long as hypertrophy keeps pace with the obstruction and with the ventricular dilatation, all goes well. But when the compensation is broken, when the obstruction or the dilatation, or both, get ahead of the hypertrophy, then the ventricle is unable to send the full charge of blood through the narrowed aortic opening. At each contraction of the ventricle some blood is left within its cavity, and the blood flowing in from the auricle as usual, causes a surcharge of blood within the ventricle. This condition makes it impossible for the auricle to fully empty itself and here again we have dilatation resulting. Nature at once attempts to compensate by starting a hypertrophy of the left auricle; but this only adds fuel to the flame, for the increased power of the auricular muscle sends more blood into the crippled ventricle, which is already distended to such an extent as to destroy the compensatory balance. The effect upon the circulation is decreased arterial tension, and engorgement of the pulmonary and venous circulation. Now what are the indications? Plainly, to strengthen systole, shorten diastole and increase arterial tension. We certainly must not look to digitalis and its congeners to meet these indications. Cactus, caffein and cocain, from their physiologic effects, may be expected to do much for us, and experience has proven their value in aortic stenosis. In aortic regurgitation we have eccentric hypertrophy of the left ventricle from a reversed current of blood from the aorta. Regurgitation becomes rapid and prevents the perfect filling of the coronary arteries. The hypertrophy so increases blood pressure as to produce endarteritis and finally atheroma. Thus the heart muscle becomes impoverished and dilatation without compensation results. Regurgitation through the aortic orifice takes place during diastole. If we can shorten diastole and strengthen systole, we are certainly doing something toward restoring the circulatory equilibrium. Again our physiologic findings point to cactus, caffein and cocain. We have it on so good authority as that of Dr. Reynold W. Wilcox, of New York, that cactus has proved itself, clinically, to be the remedy, par excellence, in aortic regurgitation. Lesions of the right heart being rare we will pass over their consideration. In cases where there is increased peripheral resistance as in pneumonia in the first stage, chronic disease of kidneys, etc., we find a special field for the use of the vaso-dilators, viz., aconite, veratrum and nitro-glycerin. In the first stage of pneumonia we have engorgement of the blood-vessels of the lung, with increased action of the heart. If we give veratrum, we bring down the heart's action and dilate the blood-vessels throughout the body. We take the blood away from the lung, and we practically bleed the patient into his own vessels. I am well aware of the important rôle played by hygienic, dietetic and mechanical agents in cardiac therapy. However, a consideration of these in detail is entirely without the scope of this paper, in which I have endeavored to call attention to the scientific use of some of those agents, which strictly speaking, must be set down as secondary to a proper regulation of rest, diet and regimen, in the treatment of cardiac disease.

**Insufflation as an Aid in Diagnosing Gastric Stenosis.**—A severe case of what was supposed to be cicatricial stenosis of the pylorus, was differentiated as constriction through the center of the stomach and treatment indicated by means of insufflation. The *Prov. Med.* of January 11 records the case, with details of effect of insufflation as aids to diagnosis.

## ORIGINAL ARTICLES.

### A PRELIMINARY REPORT ON THE ROENTGEN OR X RAYS.

Read at the Meeting of the Chicago Medical Society, Feb. 17, 1896.

BY JAMES BURRY, M.D.
CHICAGO.

Probably no scientific discovery has received wider attention than the promulgation of the use of this ray has elicited.

Prof. William Conrad Roentgen attracted the attention of the world when he succeeded in making photographs of the bones of the human body through the living subject. Earlier experimenters had described photographic activity in cathode rays, and it may be proper to consider some of their work.

In 1879 Prof. William Crookes presented to the Royal Society a paper embodying the results of a series of remarkable experiments on electrical discharges through vacua. Previous to this, experimenters had investigated discharges through rarefied gases, and had observed in a general way the behavior of discharges in comparatively high vacua. Faraday also had speculated on the possibility of an attenuated state of matter in which the behavior of molecules might be expected to be different than in the case of matter in any ordinary form. Such attenuated matter he designated "radiant matter." Crookes, however, was probably the first to conduct an exhaustive investigation on the discharges in very high vacua, and to connect the state of the attenuated gases with Faraday's hypothetical radiant matter.

At ordinary atmospheric pressure an electrical discharge of high tension takes place usually in the form of sparks between the charged terminals, or, under certain conditions, in a practically continuous discharge called a "brush." At a much diminished pressure, say one-thousandth of the atmospheric pressure, the discharge between the terminals becomes continuous and is characterized by a diffuse illumination, the color of which is distinctive of the gas through which the discharge takes place. The discharge is probably in the nature of electric conduction, and the tubes or bulbs prepared to exhibit such discharges are termed Geisler tubes.

At much higher vacua, approximating one-millionth of atmospheric pressure, the character of the discharge in the tube undergoes a marked alteration. The illumination of the path of the discharge is much diminished. A dark space surrounds the negative electrode or cathode in the bulb, the depth of the space being determined by the degree of exhaustion of the bulb, the observed path of the discharge is no longer in a line joining the negative and positive electrodes—the cathode and anode—but appears to be independent of the anode.

Crookes' investigations were conducted principally with discharges of this character, and the highly exhausted bulbs which he used are dominated "Crookes' Tubes."

Crookes applied to the rarefied gases or vapors in his tubes the borrowed term "radient matter." He assumed that within the exhausted tube the matter was attenuated to such an extent that a molecule is free to move through a sensible distance, enormous in comparison with the similar distance at ordinary pressures, without colliding with another molecule. He supposed that the molecules within the tube were projected from the cathode at a high velocity, moving from the cathode in lines normal to its surface and being stopped only by collison with other molcules, with a screen in the tube, or with the wall of the tube. At a certain distance from the cathode the rapidly moving molecules thrown off from the electrode collide with the reflected molecules; the distance from the cathode at which the greater number of these collisions takes place was considered as being coincident with the limit of the dark space, and the depth of the dark space surrounding the cathode was taken as representing the average free path of the molecules within the tube.

His experiments demonstrated, among others, the following propositions which are of value in considering the cathode or X rays:

Ordinarily radiant matter moves in straight lines; the path of the matter may be deflected by a magnet; the impact of the molecules on a surface exerts a pressure, which is sufficient in some forms of his apparatus to move vane wheels; the impact of the molecules generates heat in any body with which they collide, and excites fluorescence in many substances capable of such action.

A few years ago Dr. Heinrich Hertz discovered that the effect of the bombardment with the Crookes' tube was not limited by the walls of the tube; in other words, that the effects of the bombardment were noticeable outside of the tube. He observed that fluorescence was excited in fluorescent substances outside of an aluminum window in the Crookes' tube which was being bombarded by the molecules projected from the cathode. He suggested that this might be due to an actual projection of the radiant matter through interstices in the walls of the tube, or of the aluminum window.

In 1894 Philip Lenard, a pupil of Hertz, showed that this assumption was untenable, and that the effects observed outside the Crookes' tube might be more reasonably accounted for as due to a vibration of the ether created by the cathode. These vibrations he found to be capable not only of exciting fluorescence, but of precipitating chemic changes in photographic plates. He observed that the "cathode rays," as he called the vibrations, might penetrate to a considerable distance outside of the tube, all substances being to different extents penetrable by the rays.

Within the last three months Professor Roentgen has announced the discovery of a ray proceeding from the excited Crookes' tube characterized by behavior different from that of the cathode rays. He stated that the newly discovered Roentgen, or, as he designated it, the "X" ray, proceeded not from the cathode, but from the point in the wall of the tube upon which the radiant matter in the tube impinged. The point from which these X rays emanated can be shifted by changing the path of the radiant matter with a magnet so as to make the molecules strike on a new point of the tube. The X rays, on the other hand, could not be deflected by a magnet, were not reflected by any body which obstructed them, and were not refracted by any body which was transparent to them. For the most part the law of the X rays, as announced by Roentgen, are quite similar to those announced by Lenard for the cathode rays. Hence there is still some doubt as to whether the X rays are not in fact identical with the previously known cathode rays. However, the announcement of Professor Roentgen's

discovery was accompanied by the statement that the bones were less penetrable to the X rays than the soft tissues, that a photograph or shadow picture might be obtained showing the bones within living bodies. This startling statement gave a prominence and value to his work which obtained for it instant recognition.

The surgical importance of securing outlines of deeply imbedded bones or foreign substances appealed to me strongly. My first experiment was made with a two-cell battery, a one-half inch spark induction coil and an incandescent lamp for a Crookes' tube. This experiment was made on the 4th inst. and was unsuccessful. On the same day, after a liberal use of the telegraph I secured two Crookes' tubes from a house in Philadelphia. The tubes could not be secured either in Boston or New York. One of these tubes is worthless. The other is the one with which all our successful work has been done.

The tube is spherical in shape with four electrodes entering it, one pointed terminal at each end, a disk terminal in one side and a pointed terminal in the other side. All of these electrodes are made of aluminum connected with a platinum wire. As I use it the disk terminal is the negative or cathode and the pointed terminal the anode. From the cathode emanate the rays which travel in straight lines and independently of the anode, producing in this tube a greenish-yellow light.

On Thursday the 6th inst., on invitation of Mr. Scribner, I took the tubes to the experimental laboratory of the Western Electric Company, where, in company with Mr. Scribner and Mr. McBerty, my experiments were resumed.

Our first efforts were made with a four-volt primary and a 1½ inch induction coil. The tube was placed immediately above the object to be photographed, with the latter resting on the wooden slide of a holder containing a photographic plate. In this way, with thirty minutes exposures, shadowgraphs were secured. These shadowgraphs gave but dim and indistinct outlines of the bones. Experiments were then made by varying the time of exposure, the distance between the bulb and the plate, the voltage of the primary current and the number of interruptions. After these experiments, which gave but fair shadowgraphs, a lead diaphragm with an aperture of one-half inch in diameter was interposed between the bulb and the plate, the distance of the bulb from the plate reduced to eight inches, and longer exposures made. The aperture in the lead diaphragm was placed below and in a line with the fluorescent spot in the bulb. These changes gave improved results. By varying the distance from two to fifteen inches between the bulb and sensitized plate, increasing the aperture in the lead diaphragm, and with the bulb six inches from the plate a perfect shadowgraph of the bones in the hand, wrist and a part of the forearm was obtained.

On Tuesday, the 11 inst, a small buckshot was located in the hand of a painter, between the fourth and fifth metacarpal bones near their carpal ends by means of the shadowgraph, and this shot I removed

ROENTGEN PICTURE TAKEN BY DR. BURRY AND CHAS. E. SCRIBNER, FEB. 14, 1896.

in Mercy Hospital. This is the first instance in America as far as I can learn, of the removal of a foreign body following its location by such means, and where it could not be located by any other means.

These shadowgraphs show that the soft tissues make some impression on the plate. It does not seem improbable that with a more intimate knowledge of these rays, some way of controlling them, as is the case with all other known rays, will be found. It may then appear that the varying changes in disease and health of the soft tissues, as shown by the shadowgraph, will become known and in this way a cirrhotic liver may be differentiated from a normal one, or pulmonary tissue in pneumonitis from normal tissue. Certainly, calculi of the kidneys or gall ducts should be easily disclosed.

In the shadowgraph (see illustration) the marrow cavities of the metacarpal bones clearly appear, thus showing that these rays do penetrate bone tissue, making it not improbable that the pathologic changes in bone tissue can be shown as well as foreign bodies of substances impenetrable to these rays that may be deeply imbedded in bone.

I have exposed tuberculosis bacilli to the action of the X rays for two hours but have not had time to make cultures, so I can not make any report as to the germicidal or other action of the rays at this time. The therapeutic uses of this ray, if there are any, must be determined by careful experiment, and speculative thought in this direction is apt to be disappointing. Many uses are suggested to which this ray can be put, and the newspapers are full of experimental researches in this country and abroad. We find that many of the Universities in the East, as well as our own, are making experiments, and various reports have been printed in the papers on the work of these scientists. Out of all this work must proceed some good.

Among the claims are many ludicrous ones, as they appear in the papers. For instance, it is said that at Columbia College the shadow of a bone was projected on the brain of a dog and he immediately became hungry. In another case reported in the paper a New York physician succeeded in getting a good negative of his own brain. Is it pardonable to suppose that the plate was simply "foggy?"

Whatever the future may show, these shadowgraphs prove, at least, that as far as the extremities go, no engraving can portray the bones as well as a good shadowgraph.

Bario-platino-cyanid becomes phosphorescent under these rays. Upon a fluorescent screen of this powder it is perfectly possible to project an instantaneous shadow which would reveal to the surgeon all that a good shadowgraph would show, and it is in some such way as this, it seems to me, that this process will be most used by surgeons. If I am correct in this, two minutes time would give the surgeon a clear idea of the condition of the parts he wishes to investigate, thus doing away with the present great disadvantage of the long exposure necessary to secure a good shadowgraph negative.

Fractures through the shaft of bones are usually easily diagnosed, but those near joints are sometimes difficult to recognize. This difficulty will be easily overcome by means of the Roentgen ray.

Some of the features of this work are remarkable in showing the striking difference between the penetrability shown by bodies to this ray as against the white rays of the sun. For instance, glass which is so easily penetrated by the white rays, is very feebly, if at all, penetrable by the X ray. On the other hand, aluminum is readily penetrated.

One medical use may be in convincing patients who believe that they suffer from some organic disease, when none is present, that they are mistaken by showing them a shadow of the organ that they fear is affected.

Beyond Roentgen's application of his ray, and his statement that the ray can not be deflected by a magnet so far no advance has been made on the work of Prof. Philip Lenard as shown by his papers published in 1894.

## THE PROPOSED INTERNATIONAL MEDICAL INSIGNIA.

BY COL. R. FRENCH STONE.
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Since the recent publication of various articles with reference to the above subject have appeared in the leading medical journals of this country, and especially of those from the editorial pens of the Boston *Medical and Surgical Journal*, the *Journal of the Army and Navy* and of the AMERICAN MEDICAL ASSOCIATION, much interest has been excited and great unanimity of opinion expressed concerning the symbolism and esthetics of our profession. As one phase of the development of this question it may be stated that Col. C. H. Alden, Assistant Surgeon General of the U. S. Army, has been appointed chairman of a committee to adopt insignia to distinguish the medical corps of the Army from officers in other branches of the service, and as the medical officers of the National Guard may adopt the same design he has requested the Surgeon Generals of different States to offer suggestions as to the most appropriate emblem for this purpose, and for this reason the author of this communication has been lately engaged in a critical study of this subject in all its bearings, giving due attention to the requirements of the medical fraternity in civil life as well. As a result of this investigation we find that particular symbols have in all ages been assumed by the various civilized and uncivilized families of the human race. They have been placed upon the standards and banners of tribes and nations, upon the genealogic escutcheons of kings and the nobility, and for centuries they have been borne by members of many social, religious, literary and scientific organizations; by those of numerous and diversified trades or guilds, as well as by various civil and military officials as an expression of their position in the world or of their rank and special line of duty. In view of these facts we ask why should not physicians, although incased, like the knights of old, in the close armor of medical ethics, have at least the privilege in the exercise of their life-saving mission of proclaiming to the world the secret of their identity or nature of their vocation by means of some mystic heraldic emblem. While it is universally understood that the great mission of the medical profession is the protection of life, and while this should be symbolized, the insignia should also be expressive of the ancient origin of the noble art of healing. Early insignia were usually very simple, the colors in strong contrast and their form and outline such as could readily be distinguished even in the dust and confusion of battle. In order that our insignia,

as an emblem of neutrality, might be of international significance its claim to recognition should depend upon its form, design and coloring, and not from bearing upon its face any printed letters, words, motto in Latin, or phrase in the language of any nation. To meet this requirement the outlines of such a device are here represented. In order to protect the medical profession in its use for any other purpose than hereafter designated, as well as to protect manufacturers in its construction and sale by unauthorized parties and also in order to secure uniformity in the appearance of the emblem essential to its general recognition Letters Patent would be required.

The shield, as the most obvious piece of protective armor, was that upon which symbols were first displayed. For this reason it is believed that in the general approval and adoption of medical insignia, not only in our own country but throughout the world, the form of the ancient circular or triangular shield should be selected. For esthetic reasons the edges of the emblem should present a gold border, its inescutcheon should be of dark-green color embracing as the central feature of the field a modified form of a red Maltese cross surrounded by a narrow stripe of gold. Thus in recognition of the rules of blazon in order to preserve in striking contrast the visible elements of its structure, the placing of metal upon metal

Design, patent applied for.

and color upon color is avoided as much as possible. The red color of the cross, and green color of the field are not only universally recognized as symbols of life, thus emphasizing the significance of the cross (which for reasons hereafter given we believe to be typical of the same thing), but are also the most attractive and beautiful shades in nature, and when these are associated with the form of the ancient triangular Egyptian or circular Grecian shields in actual use as protective armor, at the time when the "Healing Art" was first recognized as an independent and distinguished vocation, then the ancient origin and the essential object of our profession, the protection of life, would be completely symbolized and the language of the insignia would need no further interpretation. Then we would be afforded not only an ornate and conspicuous emblem of neutrality in time of war, but one easily recognized on social occasions and for professional requirements in the civil as well as the military pursuits of our profession. But why should the cross be adopted as the essential feature of our insignia? In answer to this it may be stated that throughout the entire range of medieval decorative art the cross sign exhibiting an endless variety of form, proportion and adornment has exercised a most powerful influence. Referring to this subject Charles Boutell has written as follows:

"With the triumph of Christianity the cross at once was recognized as a universal symbol of the highest dignity and honor. It was made of the most precious material, enriched with the most costly gems and exquisite art. The cross became the most prominent ensign upon royal diadems and it gave both their form and their name to the noblest insignia of knightly rank. The cross crowned the scepters of princes, and the greatest warriors were proud to see the cross as well in the hilts of their swords as on the banners under which they fought." In private life also the cross was held in corresponding estimation, and accordingly the most beautiful and most prized personal ornaments appeared in some cruciform type. Thus was art taught to aid in realizing the enthusiastic sentiment of Justin Martin when he said "The sign of the cross is impressed upon the whole of nature. There is hardly a handicraftsman also but uses the figure of it among the implements of his industry. It forms the part of man himself, as may be seen when he raises his hands in prayer." In the Middle Ages the cross sign was universally held to be the special and distinctive symbol of Christianity, as to the present day the cross and the cresent are symbols which distinguish the faith of the Christian from that of the Moslem. While as a symbol of the Christian faith, at once preëminently characteristic and significant, the cross in various modifications of its form would naturally be adopted for many purposes and used in a diversity of ways, and while the greatest progress in medical science has been made since our crucified Savior died in order that a sinful world might have eternal life, and while in many ages and nations the vast majority of those distinguished in medical annals have been devout members of the Christian faith, and while the Geneva Cross of the Red Cross Society is now recognized the world over as its best practical application, yet it is not altogether for these reasons that we should adopt the cruciform device but because it has also occupied a prominent position and signification among the many sacred and mystic figures and symbols connected with the medical history of heathen nations of the greatest antiquity. Such certainly was the case in Egypt, Assyria, Persia, India, Greece, Rome and among the Scandinavian races of the North. If, therefore, we would learn the earliest account of the foundation, development and symbolism of that honorable vocation which in every land and in every clime has exercised for thousands of years its beneficent influence upon suffering humanity, we must turn back the pages of history until we reach those of Egypt, that old and mysterious country that first beheld the gray dawn of the world's creation and which has given birth not only to our own profession but to those arts and sciences which have shed their luminous rays over the field of human progress among civilized and enlightened nations in all ages from prehistoric days to the present time. And as an important reason for the expression of the main feature of this design it should be stated that a study of the hieroglyphics which constitute the sacred characters of the ancient Egyptian language in its classical phase, as found upon the earliest monuments and vases of that strange people at an age corresponding with the birth of our profession, reveals the curious fact that the cross was the ideographic sign or symbol of life. Again, we find the symbol or crucial sign of the old Olympian god, which to-day stands at the head of every medical prescription, has been handed down through

the ages from the early Greek and Roman physician to typify their invocation to that ancient heathen deity while in the exercise of their life-saving mission, and with a remnant of the old superstition still clinging to it this sign will doubtless continue to be used for centuries in the future in order that the early origin of the profession we represent may be remembered. A still more extended research among the histories and other records of ancient and modern nations with reference to the subject of medical symbolism leads to the conclusion that the crucial sign in its various forms and combinations, including the caduceous, the emblematic staff and serpents still familiar to us as part of the imprint on the title page of early and more recent medical books, are all more or less expressive of the same idea and that they are but typical outgrowths of one and the same thing. For this reason the writer, with others who have given the subject much attention, believes that the cruciform symbol somewhat modified would not only meet with very general approval but should be universally adopted as the most significant emblem of medicine in all its practical application to art, literature and civil or military organizations, affording as it does a proper emblem of the "Healing Art," fitting in its origin, significance, and, to some extent, in its actual use by civilized humanity. In this connection it is a matter of interest to know that the original idea in the international adoption of the Red Cross banner at Geneva, Switzerland, in 1864, was based on the needs of the wounded in battle, and the extent of its neutral service since this time throughout the world constitutes the most marvelous achievement in all the history of medicine. During the last thirty years this Red Cross banner has been on the fields of conflict in the wars between Prussia and Austria, France and United Germany, Russia and Turkey; in Servia, Macedonia, Roumania, Montenegro and Spain. It has also done service on fields of conflict in Abyssinia, Tunis, Morocco, the Transvaal, Dahomey, the Congo State, Zululand, Egypt and Soudan. In Asia the French have carried it in all their movements in Cambodia, Tonquin and Siam; the British into Burmah, the Dutch into Java, and the Japanese into Corea and China. In South and Central America this symbol of international beneficence has been borne in field service in Brazil, the Argentine Republic, Chile, Peru, Bolivia, Gautemala and San Salvador. And while it is fitting, therefore, that the primary and central feature of our insignia should be the crucial symbol typical of that divine gift of which we are the earthly guardians, a well founded objection has been urged against the common Geneva or Greek Cross because the arms of this are of equal size and the great mass of red color in and about the center causes an apparent lack of proportion by making the middle square look larger than its actual size. To correct this optical illusion it has been deemed best to substitute a modified form of the Maltese Cross which is lighter in the center and, therefore, presents a more pleasing feature. As an insignia for the Army it is suggested that the arms of the cross be made in the form of an ancient spear head, and for the Navy that they terminate in the form of an anchor. For use on military or naval uniforms the triangular escutcheon could be made of handsome shades of embroidered gold, or other durable material set in gold, and worn on the collar of the coat or shoulder knots and somewhat enlarged as an ornate decoration of officers housings or saddle cloths. For those members of the medical profession not connected with the Army or the Navy the insignia can be made in colored or enameled gold and with essentially the same features of the design also of other durable material more or less expensive so that the cost of the emblem would range in price anywhere from twenty-five cents to as many dollars. Both the circular and the triangular shields may be reduced in size and could be made from rolled or solid colored or enameled gold; either would be ornate and could be obtained at a moderate cost. The circular shield should be worn as a lapel button; the triangular shield as a scarf pin; the latter could be set with jewels, the cross of garnets or rubies with a small diamond in the center, but would be somewhat expensive. The accompanying engravings only show the general outline of these insignia, but illustrations in colors with prices according to material and finish may be obtained by correspondence with the writer.

250 N. Illinois Street.

## FIBROMYOMA COMPLICATING PREGNANCY; FIBROMA OF VAGINAL WALL.

Read before the Chicago Pathological Society, Dec. 9, 1895.

BY J. B. MURPHY, M.D.

CHICAGO.

FIBROMYOMA COMPLICATING PREGNANCY.

Nettie S., age 39, colored, married, admitted to the Cook County Hospital Oct. 19, 1895; family history negative; was married two years ago, no children, no miscarriages nor abortions; has always enjoyed excellent health with the exception of the present trouble. Menstruated at about 14, was regular, fairly profuse, lasting about four days; no clots, never hemorrhage. Present illness began in July, 1895, with a cessation of menstruation. It has not reappeared since. Has not had sexual intercourse for three or four months. After the suppression of the menses, noticed a tumor just below the umbilicus. This has rapidly increased in size since that time. It has not been accompanied with pain. There has been no backache; the greatest discomfort has been produced by pressure of the tumor against the edge of the ribs. No urinary symptoms; there has been no discharge.

Physical examination: Patient well nourished; large physique, considerable adipose, abdomen very markedly distended and irregular in contour. Nodular growth can be felt in the abdomen, extending above the umbilicus, and especially to the right side, where it presses against the margin of the ribs. One of the nodules below the umbilicus is about the size of a child's head, of hard consistence and fairly movable. The whole mass can be moved laterally about two and one-half inches, but not up or down. In the median line, from two inches below the umbilicus to the symphysis, fluctuation can be felt. It is apparently deep-seated, and surrounded by an irregular margin. No fetal heart-sounds nor placental souffle can be heard. Vaginal examination reveals a large hard mass, entirely filling the pelvis. The os can be felt above the symphysis. By pressing the tumor up, the sound can be introduced into the uterus two and one-half inches, but not farther, it being extremely difficult to get the os in position for the introduction of the sound. The tumor in the pelvis is very firm, smooth on surface, and of very hard consistence.

Diagnosis: Uterine fibroid, with cystic degeneration. The rapidity of growth and the absence of the history of hemorrhage somewhat oppose the diagnosis of fibroid, but this was explained subsequent to the operation.

Celiotomy: Oct. 25, 1895. Tumor found to be free from adhesions. On lifting it out of the abdomen, through a very long incision, and turning it to elevate the large nodule out of the pelvis, the left broad ligament ruptured close to its attachment to the tumor. There was profuse hemorrhage for a few seconds. The ligament was clamped with a long pedicle forceps, broad ligaments ligated and excised. The uterus was situated on the anterior surface of the pelvic portion of the tumor, and was about six and one-half inches in length. An elastic ligature was placed upon the stump, allowing the cervix to remain, so as to treat the pedicle externally. Two large pedicle forceps were placed above the ligature; uterus amputated. There was no blood in the pelvis. The parietal perito-

neum was sewed to the cervix, all the way around, just below the elastic ligature. The abdominal wound was closed down to the pedicle, packed around with iodoform gauze and dressed antiseptically.

Time for operation, thirty-two minutes. The mass weighed six pounds six ounces; it consisted of a large irregular fibroid, growing from the posterior wall of the uterus. The uterus was enlarged about six inches and contained a sac of fluid. When opened, a fetus of about three months was found in the sac, which had not been ruptured. The question of pregnancy had been thoroughly considered before operation, and thought impossible from the patient's statements and the absence of physical signs.

The impregnation accounted for the great rapidity of the growth, it being borne in mind that the patient had never noticed the tumor until July.

The patient made an uninterrupted convalescence; she did not vomit from the anesthetic, and at no time did her temperature reach 100 degrees. The highest pulse rate was 96, and that was immediately after the operation. There was no secretion from the stump, which remained perfectly dry for fifteen days, when a slight serous exudate appeared at its base—the line of separation. The pedicle sloughed on the twenty-seventh day after the operation; patient is now sitting up in bed. This completes a series of ten consecutive abdominal hysterectomies with ventral fixation of the

FIGURE 1.

pedicle, for large fibroids, not previously reported, all of which recovered.

That pregnancy should complicate uterine fibroma, is not surprising, as Gusserow, in quoting Bayle's statistics, states that twenty of every 100 women over 35 years of age have fibromata of greater or lesser size; and Klob states that 40 per cent. of all women over 50 years of age have fibromata.

That pregnancy does not appear more commonly with fibroma, is accounted for, 1, the fibroma itself tends to sterility, as it produces a pathologic condition of the endometrium, except in the sub-peritoneal variety; 2, that the fibroma does not attain a considerable size in the majority of cases, until after the child-bearing period is past; and 3, that the fibroma in the great majority of cases does not produce any disturbance during the period of gestation, and in many cases does not complicate labor. If it has attained a marked size before impregnation, its development is greatly enhanced by the pregnancy. The variety of fibroma in which the muscular element predominates over the fibrous, increases most rapidly under the stimulus of pregnancy. The tissue becomes edematous and doughy, as may be noted in the posterior wall of the uterus and the portion of the tumor attached to it, in the specimen presented.

The uterine fibroid of large size rarely admits of the completion of the period of gestation. It usually terminates in abortion, hemorrhage, impaction in the pelvis, labor pains, placenta previa, rupture of the uterus, death of fetus or sepsis. That the presence of fibroma with pregnancy may not deserve surgical attention, was well established by Theodore Landau (Volkmann's *Sammlung klinische Vorträge*, No. 26, Neue folge). He expressed himself in the following words:

"A myoma which rests in or on an impregnated uterus, does not of itself, demand the attention of the surgeon. Only when the tumor produces unpleasant symptoms is active interference indicated. The principal of these unpleasant symptoms are mechanical or pressure symptoms, as incarceration of the uterus in the pelvis, galloping increase in size of growth, nephritis, uremia, ascites, etc., as well as the reflex manifestations of pressure, cardiac, respiratory and gastric. When these disturbances are sufficiently severe to demand the physician's attention, the question arises—What shall be the procedure? Will it be an enucleation of the fibroma, an induced abortion, an abdominal hysterectomy, or

FIGURE 2.

an abdominal extirpation of the fetus, without the removal of the uterus and appendages? The selection of operation will depend on whether the immediate emptying of the uterus is necessary, and if so, whether it is possible for the fetus to pass from the uterus, through the cervix and vagina; or, whether it is desirable to have the tumor itself removed, at the same time that the patient is freed from the fetus. When the pelvic passage is blocked, the only question to be considered is laparotomy."

This statement was made three years ago. The improvements in technique and statistics of abdominal hysterectomy have poduced an entire change in the conditions which guide us in our selection of procedure. It is questionable whether induced abortion in the presence of a large fibroid is not as serious a procedure to-day as an abdominal hysterectomy in the hands of an expert operator. It is certain that if the tumor itself demands removal, it is better that the tumor, uterus and fetus in situ should be removed at once, without attempting a previous abortion. The recognized dangers in parturition of a myomatous uterus are atony, hemorrhage, peritonitis, gangrene of the tumor, rupture of the uterus and retention of the placenta. These dangers are all

present with abortion, some in a lesser and some in a greater degree than in labor at full term. The dangers of sepsis and hemorrhage are very much greater in induced abortion, while the dangers of rupture and gangrene of the tumor are less. Gusserow reports a death from intraperitoneal hemorrhage in induced abortion, from rupture of the veins around the tumor.

The statistics for simple myomectomy, without removal of the uterus collected by Landau, represent eighteen cases at different periods of gestation, ranging from twelve weeks to seven months, and in the hands of fourteen different operators, show four deaths and seven miscarriages. It was first performed by Péan, Dec. 15, 1874. It can be seen that the mortality for this operation is 22 per cent. and for abortion about 40 per cent. (Würkert[1] collected twenty-seven cases with seven deaths), not encouraging from either standpoint, notwithstanding the beautiful results produced by Schroeder, Landau, Frommel (four cases and one death), and others. The same author collected eighteen cases of supervaginel amputation of an impregnated myomatous uterus at different periods of gestation, ranging from two to eight months, by different operators, with seven deaths, a mortality of about 39 per cent. (first performed by Kaltenbach, March 21, 1880). The operations of enucleation and amputation, from these statistics, are to be considered very grave undertakings, both for the life of the fetus and the life of the patient. Still, these statistics were collected before 1890, and the operation of abdominal hysterectomy in that period had a much greater mortality than now. It is to be hoped, therefore, that the statistics of the future, as well as of the past two years, will show a great improvement in the results of the amputation of the gravid myomatous uterus, over the period preceding 1890. Landau concludes: "Hysterectomy should be the operation of selection, in submucous, intramural and multiple fibroid, enucleation coming in question only where the tumor is pedunculated or of small size, and subserous."

The difficulties of operating on the impregnated uterus, contrary to belief, are less than in the non-impregnated, and Hoffmeyer says whoever has seen an operation on the gravid uterus must admit that this statement is true. The vessels are larger, the uterine body is lifted up out of the pelvis and the ligaments are more easily reached in the impregnated than in the non-impregnated uterus. The danger following the operation, the same author says, should be less, if care be taken to remove all of the placenta and membranes.

For operation, fibromata are conveniently divided into 1, impacted pelvic myomata. These are the most favorable for operation and they usually originate from the cervix uteri and can be enucleated through the vaginal wall, without opening the peritoneal cavity. This procedure, says Chrobak, should always be followed, except where the tumor is larger than a child's head. 2, Extra- or retro-vaginal impacted fibroids. These may originate in the cervix, or in the lower portion of the corpus uteri, and are usually in the process of the enlargement of the uterus, lifted out of the pelvis into the abdomen (Spiegelberg), and are removed by laparotomy. This may occur, even though they be retro-vaginal primarily, and originate from the cervix. 3, Abdominal fibroids. The latter usually originate from the body of the uterus, and are removed by celiotomy.

When should the operation be performed? In the process of enlargement, the uterus lifts itself out of the pelvis; the fibroid may remain in the pelvis or accompany the uterus. The symptoms of impaction, as a rule, are transitory, as the uterus accommodates itself to its surroundings. If, however, these symptoms persist, they must be relieved, either by lifting the uterus and tumor out of the pelvis, or by enucleating the tumor. The rule laid down by Schroeder is that the operation should be postponed as late as possible. He says the prognosis of hysterectomy is more favorable, particularly of retro-cervical myoma, the later in pregnancy it is performed, and most favorable, if performed at the end of gestation, because at this period we jeopardize the mother less, and favor the preservation of the child. When the period of gestation is complete and abdominal section is indicated, we must then decide whether it shall be Cæsarean section, Porro or hysteromyomectomy. The statistics of the Cæsarean section with fibroma show the results to be extremely discouraging; the majority of the cases terminated fatally, even with Sänger's method. The Porro, without the removal of the tumor, can be accomplished in only a small number of cases and should not be attempted. Hysteromyomectomy is the most desirable as well as the most favorable, both to the mother and the child. The question of treatment of the pedicle, whether it be extra or intra-peritoneal, or a total extirpation, must be decided by the individual operator, as each can obtain better results with the method with which he is most familiar. True, the extra-peritoneal variety tends to longer convalescence, but it has the advantage of leaving the peritoneum practically without an abrasion.[2] Gusserow collects in all 228 cases; the mother died in 123, a mortality of about 54 per cent., and 67 children, a mortality of 30 per cent. This includes the operations performed in the pre-antiseptic period, and a few in the antiseptic period, but does not include any cases of the aseptic era. Chrobak in 1893 successfully treated a case of this kind, in which he performed the total extirpation on the three-month impregnated uterus with internal treatment of the stump. From Schroeder's standpoint, the most desirable time to operate is at the completion of the period of gestation, and the most favorable operation a hysteromyomectomy.

In the case here presented, the indication was for immediate hysteromyomectomy, as it was not possible to even sound the uterus from the vagina, and delivery through the vaginal route could not be thought of. The tumor was producing pressure symptoms, and pregnancy had only existed for three months. The broad ligaments were quite well elevated above the brim of the pelvis; the laceration produced in the left was caused by the great distance to which the uterus had to be elevated before the tumor, which was situated deep in the pelvis, could be turned out. The application of the ligature and clamps was less difficult than in the average abdominal hysterectomy where pregnancy was not present. The statistics collected by Gusserow are certainly not encouraging for allowing the pregnancy to continue to the full period of gestation. It would seem that the operation at the seventh month should give more favorable results to the mother and scarcely less to the child, as

[1] Centralblatt für Gynecologie, No. 45. Page 1056, 1893.
[2] This can also be accomplished by the total extirpation, with only a line of suture in the peritoneum in the floor of the pelvis.

the mortality to the latter is already 30 per cent. The cases reported by Dr. Thad. A. Reamy, of Cincinnati; Dr. Wm. J. Taylor, of Philadelphia; Dr. Henry B. Stehman, of this city; Dr. Chrobak, of Vienna, and the case here reported, are illustrations of the results that may be obtained in early hysteromyomectomy where the tumor is complicated by pregnancy.

### FIBROMA OF VAGINAL WALL.

In the year 1882 there appeared from Keinwächter, an article on "Vaginal Myoma and Fibroma" (published in the *Zeitschrift für Heilkunde*, Band iii, S. 335, Praag), in which he collected fifty-three cases. It is the largest collection that I have been able to find. Breisky, in the year 1886, added five to this number (Die Krankheiten der Vagina, *Deutsche Chirurgie*, Lief. 60, S. 163), which included the cases of von Hermann, two from Gaye, one from Casewell, and one of his own. In addition to these, I find one from Hasenbalg (*Zeit. für Geb. und Gyn.*, Band 23, Heft 1, p. 52), and one from Archibald Donald (*Med. Chron.*, January,

FIGURE 3.

1889, p. 103). The one reported by E. Hasenbalg was polypoid in shape. Of the total number, twenty-nine were in the anterior, twelve in the posterior, five in the side; others not given. The tumor may reach a considerable size. Oliver and Jacob's cases weighed a kilogram. In two old cases reported by Baudier and Gremler, the tumors weighed ten pounds. They are more frequently sessile than pedunculated. The development of the tumor is extremely slow. It may be observed at all ages. Martin reports a case in a child at birth. Tractzl found one in a child 15 months old. It produced obstruction of the urethra and rectum. They are most commonly detected at middle age, and are often found in old people, where they have existed for many years. The symptoms produced by them are merely mechanical, *i. e.*, pressure upon the bladder, urethra, rectum and surrounding tissues. One case was reported that was accompanied by uterine hemorrhage. The diagnosis is not difficult to make, the greatest care being necessary to differentiate it from cysts in the vaginal wall close to the urethra, and fibroma of the cervix uteri. It presents a smooth, hard surface and can be distinctly separated from the uterus in the majority of cases. When located in the anterior vaginal wall, it usually begins at the urethra, close to the sphincter, and spreads laterally between the mucous membrane, as in the following case, viz:

S. B. was admitted to the Mercy Hospital Oct. 17, 1895. Family history negative. About four years ago, patient noticed that a tumor projected from vagina. It grew with moderate rapidity, and when about the size of an apple, it ulcerated on the surface and gave a very offensive discharge. The tumor up to this time had not caused any unpleasant symptoms, with the exception of a heavy, dragging sensation in the pelvis. She was operated on at that time (two years ago) and the protruding portion removed. About six months ago, she discovered that a prominence still remained in the anterior wall of the vagina. There was no pain nor discomfort. It has gradually increased in size; there were no urinary symptoms.

Examination: The smallest portion of the tumor is apparently attached to the wall of the urethra, in the median line.

FIGURE 4.

It extends from that point to the left, out to the margin of the pelvis. It can be distinctly separated from the uterus, to which it is not attached. The largest portion presses upon the left side of the pelvis, in front. Rectal examination shows that the tumor is about an inch from the cervix uteri, and hugs the left pelvic wall closely.

Diagnosis: Fibroma of vaginal wall.

Operation: An incision was made in the anterior vaginal wall, beginning at the urethra, and extending to the left an inch and a half. The surface of the tumor was exposed, and it was readily enucleated with the finger from the submucous vaginal tissue. Cavity packed with iodoform gauze. Uninterrupted convalescence. The tumor measurements are, 9½ c. long, and 5 c. in diameter; the thick end being 4 inches and the smallest 2½ inches. It weighs 57 grams.

Microscopic examination: Myxofibroma of the vagina. The tumor is a typical fibroma, the seat of fatty and mucoid infiltration. The sites of fat masses are shown at *A*. The mucoid infiltration is not even. This material did not stain with iodin, nor with methylen violet. With eosin it stained somewhat more deeply than the other tissues though not markedly so; it was soluble in water. The conclusion was that it was mucus. The number of vessels in the tumor had been very large. Two factors, endarteritis and infiltration obliterated many of them, and greatly diminished the caliber of others. Some entirely obliterated are seen at *B*. Others partially excluded at *C*.

# NOTES ON THE DISTRIBUTION OF BACILLUS COLI COMMUNIS.

BY JOSEPH MARSHALL FLINT, S.B.
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The peculiar but obscure relations existing between the bacillus of typhoid fever and bacillus coli communis have made it necessary to acquire a fuller knowledge regarding the natural distribution of the members of the coli-typhoid group. It has sometimes been asserted, although on insufficient evidence, (Blachstein, Kellogg), that many of the lower animals normally harbor intestinal bacteria capable of causing typhoid fever, and in this connection the recent investigations of Lösener[1] upon the occurrence in nature of bacteria possessing the characteristics of the typhoid bacillus having no apparent connection with an antecedent case of typhoid fever seem to be especially noteworthy. With a view to throwing light upon some of these questions of distribution, the following study was undertaken.[2]

The fact that bacillus coli is normally found in the intestines not only of man, but also of several domesticated animals has been well established by the researches of Escherich,[3] Smith,[4] Tremblin,[5] Dyer and Keith[6] and others. My own studies were chiefly upon material procured through the kindness of Mr. C. B. DeVry, while head-keeper of the Lidcoln Park Zoölogical Gardens, Chicago. The feces, obtained as fresh as possible in each case, were collected with bacteriologic precautions and transported as speedily as possible to the University laboratory where they were plated at once. All told, the feces or intestinal contents of twenty-eight animals were examined; in fourteen of these bacillus coli was found either in pure culture or in numbers greatly preponderating over the other forms present. In several cases, *e. g.*, in the feces of the moose, I have found varieties resembling bacillus coli very closely, but these have been for the time being neglected, my aim being to discover the presence of the typical, unmistakable bacillus coli. Minor variations, however, appear in the tables following:

| | Source. | Fremlin. | Dyer and Keith. | Smith. | Flint. |
|---|---|---|---|---|---|
| Man | Feces | + | + | + | + |
| Elephant | Feces | | | | + |
| Buffalo | Feces | | | | + |
| Cow, calf* | Feces | | + | + | + |
| Horse | Feces | | − | | + |
| Moose | Feces | | | | ○ |
| Elk | Feces | | | | + |
| Reindeer | Feces | | | | + |
| Llama | Feces | | | | + |
| Cashmere goat | Feces | | | | + |
| Lion | Feces | | | | + |
| Tiger | Feces | | | | + |
| Leopard | Feces | | | | + |
| Bear | Feces | | | | + |
| Black wolf | Feces | | | | + |
| Wild cat | Feces | | | | + |
| Dog | Feces | | + | + | + |
| Swift fox | Feces | | | | + |
| Cat† | Feces | | + | + | + |
| Swine | Feces | | + | + | + |
| Raccoon | Feces | | | | + |
| Kangaroo (no growth) | Feces | | | | + |
| Rabbit | Feces | + | − | | |
| Guinea-pig | Feces | + | | | |
| White rat | Intestine | + | | | + |
| Mouse | Feces | + | | | + |
| Fish otter | Feces | | | | + |
| Stork | Feces | | | | + |
| Brown pelican | Feces | | | | + |
| Dove | Feces | − | | | |
| Snake | Intestine | | | | + |
| Frog | Intestine | | | | + |
| Necturnus | Intestine | | | | + |
| Turtle | Intestine | | | | + |
| Perch | Intestine | | | | + |

The growth of these forms on gelatin and agar plates was typical and needs no comment. No active movement in the hanging drop was observed in well-developed colonies on gelatin and agar plates, but individuals from the younger colonies frequently exhibited rapid movements of translation. Upon potato the characteristic rich, yellowish-brown growth took place. In all comparisons of the growths on various media I have found it absolutely essential to conduct parallel cultures, since comparatively trivial changes in composition, age and temperature lead to results which are not strictly comparable.

The more important tests made are presented in tabular form:

| | Nitro-Indol test. | Formalin Bouillon. | Gas production§ (Glucose agar.) | Glucose bouillon. | Coagulation of milk. | Dunham's rosolic acid medium. 24 hours. |
|---|---|---|---|---|---|---|
| Human feces | + | cloudy | + | + | | alk. |
| Moose | − | cloudy | + | + | 8 days | alk. |
| Lion | + | cloudy | + | + | 3 days | alk. |
| Bear | + | cloudy | + | + | 2 days | |
| Black wolf | + | cloudy | + | + | 2 days | |
| Llama | + | cloudy | + | + | 2 days | |
| Leopard | + | cloudy | + | + | 8 days | alk. |
| Tiger | + | cloudy | + | + | 2 days | alk. |
| Swift fox | + | cloudy | + | + | | alk. |
| Raccoon | + | clear | + | + | | |
| Fish otter | − | cloudy | + | | | |
| White rat | + | cloudy | + | + | 18 hours | |
| Snake | + | cloudy | + | + | quickly | |
| Frog | + | cloudy | + | + | slowly | alk. |
| Turtle | + | cloudy | + | | | |

Investigation into the diet of the animals examined throws no light upon the reason for the presence of bacillus coli. The meat-eating animals, with the exception of the wild cat, have been found to contain bacillus coli in the feces, but it has been observed not uncommonly in those of the herbivora also.

Black wolf, + meats.
Swift fox, + meats.
Tiger, + meats.
Wild cat, — meats.
Leopard, + meats.
Lion, + meats.
Calf (month), milk. Probably fecal contamination.
Fish otter, + fish, twice daily.
Raccoon, + vegetables.
Goat, — vegetables.
Kangaroo, — vegetables.
Bear, + vegetables + bread.
Llama, + vegetables + hay.
Elk, — hay and oats.
Reindeer, — hay and oats.
Horse, — hay and oats.
Cow, + grass and hay.
Buffalo, — hay and oats.
Elephant, — hay and vegetables.

The facts here brought out emphasize the eminently saprophytic character of bacillus coli. It is sufficiently surprising that the ultra typical bacillus coli should occur normally in the intestine of so many animals, living in nature under widely different con-

* Kellogg and Novy could not find bacillus coli in feces of calf, and say that it is an unsettled question whether or not bacillus coli can pass through the alimentary canal of the cow. Kellogg holds also that bacillus coli in passing through the body of an animal acquires biologic characters closely resembling those of Eberth's bacillus.—Mod. Med. and Bact. Review, 1894.

† Flocca found the organism in the mouth of a suckling kitten.

‡ Fremlin does not state whether it is the common rat or white rat.

§ It is perhaps possible that a more exhaustive determination of the fermenting powers of these microörganisms might have revealed differences between them which the glucose test alone did not bring to light. See *e. g.* Smith "Notes on Bacillus Coli Communis and Related Forms." Am. Jour. Med. Sciences, Sept., 1895.

‖ "Vegetable diet" consists of ordinary market vegetables, such as carrots, turnips, cabbage, etc. Animals fed twice per day.

ditions and with intestinal contents chemically quite dissimilar. It is further clear that the statement that "the true habitat of bacillus coli and its varieties is the intestinal tract of the higher mammals" will have to be extended to cover at least the intestinal tract of the lower vertebrates. It is interesting to note, for example, that in the intestinal tract of the poikilothermus frog is found the typical bacillus coli agreeing in every respect with the form isolated from the normal human intestine, even to finding its optimum temperature at 37 degrees C. The same is true of the culture of bacillus coli isolated from the intestinal contents of the sucker and the turtle.

Bearing in mind these facts, it is obvious that deductions from the presence of bacillus coli in water are to be drawn somewhat cautiously. Its presence, like that of "free ammonia," may or may not be indicative of sewage pollution. The assumption that bacillus coli or the closely allied forms found normally in the intestine of the lower animals can cause disease in man is thus far without foundation. The facts of epidemiology, indeed, go far to rivet our attention on the connection of cases of typhoid fever and similar diseases with antecedent cases in man.

## THE TREATMENT OF AURAL CATARRH IN THE LONDON CENTRAL THROAT, NOSE AND EAR HOSPITAL.

BY FAYETTE CLAY EWING, M.D.

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ST. LOUIS, MO.

In a previous number, having given the treatment of the different forms of nasal discharge classified as catarrhal, at the Central Hospital, I shall now proceed to make clear the method used for the cure of those varieties of ear disease usually termed catarrh, and divided into acute non-suppurative, acute suppurative, chronic non-suppurative and chronic suppurative.

*Acute Non-suppurative and Suppurative.*—Since the acute suppurative is only a more advanced or severe form of the non-suppurative, for clinical convenience they will be discussed together. Children who are victims of adenoids in the naso-pharynx are most susceptible to acute catarrh. Frequently the disease progresses no further than the non-suppurative variety. When due to adenoids they are removed under nitrous oxid gas, the curette generally being invoked, followed by a good finger scraping. When the faucial tonsils are enlarged they are removed first, at the same sitting, with a Mackenzie guillotine, the whole operation lasting only about half to three-quarters of a minute. There has never been a dangerous hemorrhage from tonsillotomy at the Central Hospital. When the tonsils are very large a cold wire snare is employed instead of the guillotine. In exceptional cases some of the surgeons use the Lowenberg forceps. The advantages claimed for the gas over chloroform are that it is quicker, and the patients recover sooner, and without the undesirable after effects. After the operation the patient is kept indoors, and fed on slops until the bleeding surface is somewhat healed. When the exciting cause of the aural mischief is the adenoid hypertrophy, the catarrh generally gets well without further treatment, after the growth has been removed. The majority of patients do not come to the hospital until after the membrane has ruptured. Previous to this occurrence the pain is generally very severe, to relieve which several leeches are applied over the mastoid and in front of the tragus. These are supplemented by warm, wet cloths, which promote bleeding and dispel pain. Poultices and blisters are never applied. Instillations of morphin gr. ij to the ounce, or a 10 per cent. solution of cocain, are dropped into the ear if necessary. When ear drops are used they are warmed by first dipping the spoon that is to contain them in hot water, and then pouring a small amount into the meatus. When the acute symptoms have subsided the ear is kept clean by syringing with a lotion composed of boracic acid gr. x to one ounce of water. For a time, daily inflation with the Politzer bag is practiced. Before perforation, if the membrane is found to be bulging and tense, indicating serum behind, an incision is made and the contents let out. Before performing this operation the membrane is anesthetized, as far as possible, by the introduction of a pledget of cotton soaked with a 10 per cent. solution of cocain. Assistance is required to steady the head, preventing the removal of the spot from the line of light at the critical moment. Careful drainage is promoted, and the patient cautioned not to stuff the ears tightly with cotton-wool. Simple, uncomplicated suppuration is generally cured in a short time by careful syringing with the above boracic solution. The ears are carefully wiped afterward and a thin pledget of cotton-wool introduced. The "dry treatment" is seldom or never prescribed.

*Chronic Suppurative.*—The idea kept constantly in the patient's mind in treating the malady is cleanliness. The ears are required to be syringed at home one or more times daily with an alkalin solution, the one usually employed being composed of:

| | | | |
|---|---|---|---|
| ℞. | Sodii sulph. | ʒ ij. | 60 |
| | Aquæ. | ℥ x. | 300 |
| Misce. | | | |
| Or | | | |
| ℞. | Sodii bicarb. | gr. c. | 6 |
| | Acidi carbolici. | ♏ ij. | 8 |
| | Aquæ. | ʒ x. | 300 |
| Misce. | | | |

The special recommendation of an alkalin wash is that it dissolves the cerumen and mucus. After the cleansing wash an instillation is employed composed of:

| | | | |
|---|---|---|---|
| ℞. | Acidi boracici | grs. xvi. | 96 |
| | Aquæ | ʒi. | 30 |
| Misce. | | | |

Or if a more astringent effect is desired, the following:

| | | | |
|---|---|---|---|
| ℞. | Liquor plumb. subacet. | ℥ iij. | 12 |
| | Aquæ | ʒ ij. | 60 |
| Misce. | | | |
| Or | | | |
| ℞. | Zinci sulph. | grs. v. | 30 |
| | Aquæ | ʒ i. | 30 |
| Misce. | | | |

As the case progresses inflation by the Politzer bag is practiced to prevent adhesion of the membrane of the inner wall of the tympanum, and anchylosis of the ossicles. It also assists drainage. The most frequent complication is extension of the inflammation to the mastoid cells, manifesting itself in pain, tenderness and swelling. The pain and swelling may be

[1] Arbeiten a. d. k. Gesundsheitsamt, XI, 1895.
[2] The work was carried out in the bacteriologic laboratory of the University of Chicago under the direction of Prof. Edwin O. Jordan.
[3] Fortschr. der Med., 1885, III, 515.
[4] Bulletin No. 6 of the Bureau of Animal Industry, Washington, 1894, pp. 9–41.
[5] Archiv f. Hygiene, XIX, (1893) p. 295.
[6] Technology Quarterly, vol. VI, No. 3, October, 1893.

present without the cells themselves being involved, in which case an incision is made down to the bone, over the site of the swelling. Should the cells show involvement, a flap of skin is turned back and an opening made into them with a small trephine designed for the purpose, or with a sharp gouge, generally the latter instrument. After they have been well exposed the cavity is washed out with a 1 to 2,000 solution of bichlorid of mercury, or the following:

℞. Hydrarg. biniodid . . . . . gr. ¼. 015
Sodii iodid. . . . . gr. ¼. 015
Aquæ . . . . . ʒ i. 30
Misce.

Care is always exercised that the solution pass into the cavity and out of the external meatus. Drainage tubes are inserted, and the ear kept carefully syringed. The tubes remain until the discharge ceases. The further complications that may attend chronic suppuration are thrombosis of the lateral sinus, cerebral abscess and meningitis. Cerebral abscess is opened and the pus let out, and the others are treated on general principles. Constitutional treatment and general hygiene are carefully looked after.

*Chronic Non-suppurative.*—Realizing that non-suppurative catarrh in the large majority of cases is the result of pathologic changes in the post-nasal chamber, and that a catarrh originating here, through extension into the Eustachian tube may produce a stenosis of its caliber through chronic inflammatory thickening of the mucous membrane, special attention is directed to the treatment of post-nasal catarrh and concomitant or producing conditions. Inflation is practiced regularly, in order to keep the tube patent and prevent fixation of the ossicles, and also for the purpose of supplying the normal quantity of air to the tympanum. When only one ear is affected or there are any special reasons why both tympana should not be inflated, the catheter is used. While the inflations are in progress the membrane is carefully watched for evidences of relaxation, in which case they are not done so often. In order to stimulate the lining membrane of the tube to a healthier condition vapors are employed, a favorite being:

℞. Chloroformi. . . . . .
Etheri acet. . . . . āā ʒ ij. 8
Sp. vini rect. . . . . ad ʒ i. 30
Misce.

A few drops of this solution are blown into the middle ear through a Dundas Grant[1] self-inflator, or from an ordinary Politzer bag with an expanded nozzle. The inflator is a simple and inexpensive instrument, and is supplied from the dispensary to patients. It consists of a glass tube about two inches long, contracted at both ends. The expanded center contains cotton, and one end serves as a mouthpiece, while to the other is attached a piece of rubber tubing about fifteen inches long. A smaller piece of glass tubing is connected with the other end of the rubber, and over this fits a rubber nosepiece. After a few drops of the ethereal mixture is dropped on the cotton the patient fits the nosepiece in one nostril, closing the other with his fingers, and blows steadily with puffed-out cheeks, until he feels the membranous movement. The *minimum* force necessary to produce this result is advised. The vapor can be specially directed to one ear by stopping the other, and turning the one to be inflated upward. Chloroform greatly facilitates the passage of air through the tube. Dr. Grant claims brilliant results from this method of inflation and medication, where Politzerization produced no appreciable benefit, and he attributes the good results to the *minimum* pressure employed. In long continued inflation the advantage of the Grant method is obvious. The Eustachian bougie is seldom used in this hospital. Massage is advocated in desirable cases, the instrument being Siegle's pneumatic speculum or some modification of it.

3526 Olive Street.

[1] One of the surgeons.

## COMMON GROUND OF MEDICINE AND DENTISTRY.

Read in the Section on Dental and Oral Surgery, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOSEPH ROACH, M.D.

BALTIMORE, MD.

At the outstart, definitions are necessary, and it is well to state, that the term medicine includes all that the average practitioner would expect to do, who did not think of establishing himself in any one of the numberless so-called specialties of medicine. For convenience, I will call dentistry one of these specialties, although it might be shown, that it is so distinct and so peculiar as to make it well nigh a thing by itself and difficult to place with any of the specialties. If it be surgery, many operations consist in cutting out decayed parts in an organ so constituted that it has of itself no power to make use of the vis medicatrix naturæ, found in other organs and tissues, and with filling the same with some foreign material. The sole use of that material is to prevent further progress of the disease and to serve as a substitute for grinding and cutting food.

There is no blood, no ligation of arteries, no stitches, no sutures are made; and the patient is dismissed, on the spot, cured by a surgery, of which it might be said, that its only relapses are due either to mechanical imperfections in the operations or to inherent faults in the structure repaired. True it is, that one department of this work trenches on surgery thus far; that in the exploration of the canals, occupying the roots of teeth, either by a failure to remove living tissue or a failure to disinfect any decomposed tissue, a local sepsis may occur, resulting in abscess and occasionally invoking grave consequences. But even this does not ordinarily rise higher in the scale of surgery, than the treatment of a felon on the finger. I have thus purposely taken a low view of the daily work of dentistry for this reason. I think possibly too much pains have been taken by its membership to elevate a most useful, nay, a most indispensable calling, into a position to vie with surgery proper. I say daily work, for while it is true, that, as dentists, we are occasionally called upon to repair a fractured maxilla or even extirpate a tumor of the jaw; such operations are but occasional and in the nature of the case, it seems to me to fall as naturally into the domain of the general surgeon, as does the fracture of the femur. The true usefulness of the dental surgeon in such cases rests in his ability as mechanician to skillfully form and adjust special splints in case of fracture. This ability he forms from his daily work noticing artificial dentures or in his possessing special, cutting instruments in the form of burs, etc., for the dental engine, instruments, peculiarly adapted for his own work in removing decay from teeth and turned to occasional use as above in removing tumors. Still none the less skill-

ful, is the work of making plates, crowns, bridges, etc., where to the dexterity of the mechanic must be added the fine eye of the artist, restoring sunken features, harmonizing incongruities and above all and most perplexing of all, pleasing or failing to please the tastes of fading humanity.

But while all the above may be true, and the work of the average dental surgeon may be largely mechanical, the fact, that both the surgeon and he work on the human body, makes a bond of union between them, which is worth study, inasmuch as whatever links in this bond are found to be the common property of both, are of much greater interest than any dissimilar points.

Of the maladies of common interest I will mention those often obscure and occasionally grave diseases, that involve the maxillary sinus. This is obvious for the reason, that in such cases the dental surgeon very often is apt to be the first observer on the ground. For whether we view these diseases as arising from diseased teeth or from some more remote and obscure cause, the dental surgeon, if he be ready to take up such cases for himself or turn them over to the surgeon, is none the less called on to diagnose accurately the symptoms, that they may be treated as purely from tooth-trouble or he may proceed on some other line. It is not in the province of this paper fully to describe all the various troubles, that may arise in the maxillary sinus; but, if you will throw with me a rapid glance at its position and uses, it will be of service in following any line of treatment that may be suggested. It is situated above the so-called jaw teeth on either side of the upper jaw and extending from the first bicuspid (sometimes the cuspid) backward to the second molar of the same. Its size varies and its exterior or facial walls are quite thin, the palatal wall stronger and its floor very variable in shape and thickness. The only opening into it upward is into the nasal cavity. The situation of the cavity is surgically important, for when we consider the tendency of all mucous-membrane covered surfaces to catarrhal troubles and the position of any cavity without natural drain, shut in by bony walls, and its only outlet narrow and pointing upward, we see at a glance how the difficulty or impossibility of any natural drainage and the tendency of fluids once accumulated could give even more trouble than does occur. Indeed if we consider the tendency of catarrhal troubles to spread by continuity of surface, it seems a wonder that all cases of chronic nasal catarrh do not involve engorgement of the antrum itself. Certainly this is what one might expect. Yet it would seem that this is not only not true; but that, on the other hand, certainly from the partial view of the case taken by the dental surgeon, the lighting up of antral trouble can be traced often to diseases of the teeth, the roots of which lie under its floor.

The dissecting table reveals to the dental pathologist a curious state of affairs just here; but, in order to grasp this situation fully, it is necessary to state what comes much more closely under the observation of the dental surgeon, a fact that only the physiognomist studies, as it should be, and that is, that in inheriting our tendencies, we inherit a mixture. Small jaws with large teeth are the rule, occasionally large jaws with small teeth: the back teeth of the father, the front teeth of the mother or vice versa. The jaws are sometimes so narrow and cramped and the teeth so large, that they crowd each other and such a lack of blood in the jaw, from non-use in mastication, makes bone and muscle without stamina. The result is, that the large teeth of the upper maxilla, the roots being formed physiologically, by addition to their length are either forced through the floor of the antrum, or else, in the evolution of that chamber from six years to twenty-one, the periosteum fails to build thickly enough to cover those roots.

They are, however, always covered by the membranous lining of this cavity, else the vessels, passing into the foramina of these teeth, would be exposed to the atmosphere. All this is not likely to involve the antrum in pathologic trouble so long as the roots of these teeth are sound, but it may be fairly stated, that more than one-half of the patients, falling into the dentist's hands, sooner or later have pulpless molars, the roots of which project through the floor of the maxillary sinus and are objects more or less irritating to the tissues against which they rest. Again in the case of molars, the roots of which do not pass through the antral floor, in the case of devitalization, an ordinary alveolar abscess may occur with the sequelæ of absorption of the alveolar plate at the tip of the root and the outflowing of pus into the antrum itself. It is true, that an abscess in such situation might not be of grave consequences, yet it is plainly a situation of risk. This may not often exist, for the reason that the widely forked roots of the upper molars and their nearness to the outer walls of bone cause development of fistulous openings, away from the antrum, yet it is a source of danger and as such should be studied. Dentists devitalize and remove the pulp from the roots of such teeth. This is a very usual, almost daily, operation. But while an earnest and faithful effort is made to perform this operation thoroughly, so attenuated are the canals of the molars, that it is not at all certain that all the pulp is removed. In such a case it is easy to see that any filling material forced into the root canal may force particles of dead tissue through the foramen and into the tissues above, inoculating these with septic matter; or if disinfectants have been used there, such as carbolic acid, corrosive sublimate, etc., may be forced through to the injury of a tissue which has, as described in the outset, no drainage in case of chronic irritation. I have said enough on this subject, I dare say, to call your attention to certain lesions of the antrum, that are common ground of observation and treatment of both dentist and surgeon, and call attention in conclusion to a case, sometimes very grave, always painful, that of an impacted and abscessed third lower molar.

The same causes to which I have already alluded, as dwarfing the upper jaw, conjoin to make the lower both small and short. In the evolution of the lower wisdom tooth, it seems less often to share in the dwarfing process than the corresponding upper tooth. In a word, it is often too large for the space between the second molar and the angle of the jaw. In consequence its eruption is so interfered with, that it may be either only partially erupted or it may be impacted at an angle against the second molar, appearing through the gum slightly or not at all. Abscess of this tooth often involves not only the tissues immediately around it, but the tissues of the throat become inflamed and grave results ensue. It is pretty well established that throat trouble of a serious, or even fatal character, has been set up by an agency seemingly so unimportant. Abscess, opening into the

pharynx, is certainly one of the sequelæ of this trouble. I have been told of cases, where the infiltration of pus between the muscles of the neck and connective tissue proceeded to the formation of fistulous openings on the stomach with ordinary results of blood poisoning.

I have said enough to indicate a common ground for dentistry and surgery in the two cases above cited. Many more might be mentioned, if time permitted, to strengthen the statement thereof.

## THE DESTRUCTION OF CHILDREN'S TEETH—CAUSE AND PREVENTION.

Read by title in the Section on Dental and Oral Surgery at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. G. HENISTER, M.D.

BALTIMORE, MD.

The destruction of children's teeth is to me, as it must be to all of you, a source of the greatest regret, and ordinary methods have failed to overcome the difficulty. It would be useless for me to attempt to go into details as to the cause of this condition, as it must be perfectly apparent to all, who stop to consider a moment. I think the first and greatest cause is neglect and ignorance as to the proper time and means of caring for the teeth. I tell you, gentlemen, it is astonishing to see the ignorance of some parents in regard to the teeth of their children. They will come into your office with a child and point to a six-year molar with the crown nearly destroyed, and say: "Doctor I wish you would extract this little snag." You will answer, "That is a permanent tooth and should be preserved." They reply, "Oh no that is only one of the baby teeth." You insist that it is a permanent tooth and refuse to extract it, and they leave your office a look of great incredulity, go to some one else who will extract it, and you will probably never see them again. This ignorance is not confined to a few of the poor, who are unable to procure the services of a dentist but extends to others who have plenty of time and means, but who never think of their children's teeth until they are crying with the pains of toothache. There is still another class of parents, who do all that they think necessary by insisting upon the use of the tooth-brush and dentifrices, but never think of consulting a dentist, so long as the child does not complain. They make a mistake, common to a great many, that the incisors are the first permanent teeth, and thus utterly neglect the six-year molar, thereby leaving it for a year or two exposed to the inroads of caries, without any protection whatever.

Another important cause of this decay is in the use of improper foods; by double bolting in the craze for white flour and bread, the phosphates or bone-making properties are taken away, and as a consequence, the teeth of children are imperfectly developed. I suggest to my patients the use of corn bread and graham bread, and I also prescribe the "Syrup of Hypophosphites" to endeavor to check and restore the loss of the lime salts of the teeth.

I have tried to enumerate a few of the causes of the loss of the teeth of children; I now come to the methods of saving them and to the responsibility of dentists and physicians alike. I have spoken to physicians about the matter, and they nearly all disclaim any responsibility, saying: "The teeth are not in our line, that is your work." This is a serious mistake. No physician who has the welfare of his patients at heart can afford to neglect the teeth, for in the mouth begins the process of digestion, and if the food is not properly masticated, it goes into the stomach in lumps, and gives the digestive organs there, so much work that they become impaired and unable to properly perform their functions. We have been called a "nation of dyspeptics" and the cause has been attributed to the rush and hurry of American life, in eating too much and too rapidly, but I do not think this is the entire cause. The teeth being imperfect, imperfect mastication is the result, which is an important factor in this distressing complaint. The physician says, "What can I do? You would not have me fill the teeth?" No, that is entirely unnecessary and ouf of his line, but he can, at least, examine the teeth ot children, and insist upon the parents taking them to some careful dentist. This is not a mere suggestion; it is his duty, a sacred obligation. If the nose, eye or ear is affected, does he not examine it and insist upon the parent taking the child to a specialist? Do you not think that the teeth are of sufficient importance to warrant equal care? I think so and say that the health of future generations will, in a great measure, depend upon the preservation of the teeth now. It has been predicted that the "coming man" will be toothless and hairless, and if things continue as they have been going, this will probably be so. It has been demonstrated by scientists that deformities and malformations can be transmitted from parent to offspring. If it is so with other parts of the body, why not with teeth? Jaws are sometimes entirely stripped of teeth, and when some teeth do remain they are only vestiges of what they should be. This I think is a deformity that can be transmitted.

I have observed on several occasions that peculiarities of the mouths of parents were inherited by children; for instance, I saw a mother who never had a left superior lateral incisor. One of her sons, in fact, the only one of her children I ever saw, had the same peculiarity. So I might go on giving examples of what will probably happen if we do not save the teeth of the children. You all know that the field of action of the dentist is, in a manner, circumscribed. He can not regularly go the homes of his patients to examine their teeth, but must wait until they come to him. Now here is where the physician should do his part. He usually has the care of the child from its very infancy, and if he would occasionally make a careful examination of the teeth of his little patients, and send them to the dentist, the small cavities of decay could be filled with some simple material, and the teeth thus preserved indefinitely. A short time ago a physician, whom I know, insisted that a mother should take her little girl to a dentist, saying the six-year molars were decayed, and required filling. She was brought to me and I found that the teeth were badly decayed, and so sensitive that I had great difficulty in persuading the child to allow me to do anything to them. She was eleven years of age; if this physician had examined her mouth regularly, and insisted upon her going to a dentist the caries could not have made such progress. Dr. Bonwill, the eminent Philadelphia dentist, has said that the only way he has ever been able to do anything with the six-year molar, was to fill every tiny spot of decay. So once again I beg of physicians to watch the mouths of the children, and send them to a dentist.

Now, gentlemen of the dental profession, what is our duty? In the first place, we must endeavor to educate our patients. How can it be done? I have seen little treatises upon the care of the teeth, written from time to time by dentists and others, who have given this matter some attention, but as a rule they were too scientific for the average lay reader. What is needed, and what I would suggest is the publication, under the auspices of the AMERICAN MEDICAL ASSOCIATION, or the National Board of Dental Faculties, of a small tract or leaflet, written in plain, simple language so that any one can understand it, describing the order of the eruption of the permanent teeth, and the proper means of caring for them, and warning parents of the necessity of preserving the temporary teeth until the permanent teeth appear. These little papers could be given our patients, and I think, in this manner, great good could be accomplished. Another method that has occurred to me, is the preparation of short articles upon the care of the teeth, written in such a manner as to interest, and at the same time instruct, the children as to the necessity of taking care of their teeth, these articles to be published in juvenile papers, such as *St. Nicholas*, *Chatterbox*, *Golden Days*, etc. This is only an idea of mine, and may not be practicable. Everything is to be published with the sanction of some recognized medical or dental society, thus removing from it every semblance of quackery or advertising.

Now, gentlemen, I have presented these few ideas of mine. I have attempted nothing scientific, and have given no new and startling theories, but have endeavored to express myself in plain, simple language; and I would ask you not to hesitate in criticism of me, and my suggestions, for my object has been to provoke discussion, thereby bringing out the views of those present upon the subject. I thank you for your kind attention, and will say, in conclusion, if this paper is the means of saving only a few of the teeth now annually lost, I will be very happy.

## THE MERCURIALS.

BY S. V. CLEVENGER, M.D.
CHICAGO.

(*Concluded from page 366.*)

*Calomel.*—Adopting Schmidt's[12] analysis of pancreatic juice, I found that it required 21 grams (323 grs.) of the official hydrochloric acid to neutralize 143 grams (2200 grs.) of this artificial pancreatic juice. The proportion was as 1 to 7. One part of hydrochloric acid will neutralize one and one-half parts of potassium hydrate. Then the alkalinity of pancreatic juice is to potassium hydrate as 7 to 1.5, or it requires 4.6 times as much pancreatic juice as caustic potash to neutralize the same weight of muriatic acid. Schmidt's quantities being parts of 1,000, I am thus enabled to place the alkalimety of pancreatic juice at 4.6 parts per 1,000, which agrees remarkably with Matteucci's estimate of the lymph and chyle alkalinity being equivalent to 4.3 parts per 1,000, in terms of potassium hydrate. Bidder and Schmidt estimated the amount of pancreatic fluid daily secreted by man as 7 ounces (224 grams). This is equivalent to 10 grams (154 grs.) of potassium hydrate and sufficient to reduce 42 grams (647 gr.) of calomel into black oxid of mercury. At least it is safe to presume that an ordinary dose of calomel is converted into black oxid of mercury as soon as it encounters the pancreatic fluid. Black oxid of mercury is one of the most unstable compounds; at bodily heat it will yield oxygen and readily be converted into metallic mercury in the presence of deoxidizing substances. Liver sugar, or the glucose formed by pancreatic juice acting upon starchy matter, is quite sufficient to convert the black oxid into metallic mercury, by deprivation of oxygen at bodily temperature.

At this stage it might be expected that calomel would act the same as blue mass, and generally speaking this is true, though the liberation of the small amount of chlorin and formation of chlorids of sodium and potassium would of itself accelerate glandular action in the gastro-enteric vicinity. The globules released from calomel average smaller than those in pill mass, though many of the spheres are quite as large.

Parrish claims that "long trituration of calomel increases its power to salivate."[13] This pulverization may cause the liberated globules to be more widely distributed in the alimentary canal and hence prevent any tendency of the lesser globules to form larger ones. In the finer divided state the metal would be able to act more rapidly through the circulation. At 10 A.M., to a chicken weighing four and a half pounds, eighteen months old, I gave 5 grains of calomel. At noon it was sick and very thirsty; 9 P.M. I blew 10 grains more calomel into its pharynx, and at 10 o'clock P.M. killed it. It ejected four ounces of water from its mouth, mixed with the last dose of calomel I had given it, and I recognized black oxid crystals in this liquid which apparently formed above the crop. I did not expect conversion to occur at this point, but it indicated the general tendency of mercurials toward decomposition everywhere in the body instead of a formation of higher salts. The feces contained mercury globules. Mercury was distinguishable by the microscope in three out of five parts of the chicken's blood; traces of calomel and black oxid were discernible in the proventriculus and gizzard; a few crystals of the black oxid with a great many globules of the metal were found in the upper intestine, with only metal lower down; the liver contained the metal, while the mesenteries held unmistakably large quantities of the globules, ranging downward in size from those usually found in blue mass. The liver globules were small, while those in the mesenteries were large.

Frequently repeated, small doses of calomel impress the general system better since they allow reduction and absorption to occur at intervals, insuring complete reduction and absorption, and widespread dissemination through circulatory channels. This is no less true of the mercurials in general.

From remote periods it was supposed that salt and acids converted calomel into corrosive sublimate in the stomach though this has been repeatedly shown not to be the case. One of the denials was made from numerous experiments by Verne:[14] "No poisonous compounds are generated from calomel in combination with such bodies as salt, sugar, citric acid, etc.: and whenever such mixtures have been followed by alarming symptoms the calomel must have been an impure article. The protochlorid of mercury is really a more stable compound than ordinarily considered, and it would appear that bichlorid is more easily converted into the proto combination rather than *vice versa*."

Upon testing the stocks of calomel in a dozen drug

[12] Annalen der Chemie und Pharmacie, 1894, XCII, p. 38.

[13] Pharmacy, p. 290. [14] Repertoire de Pharmacie, June 1879.

stores in Chicago I found corrosive sublimate traces in nearly all, and in that of a few manufacturers the amount to the ordinary dose must have rendered this chlorid far from "mild." So, as Verne notes, when calomel acts harshly it is probable that it is impure by containing the bichlorid.

Further, as to the mistake that a higher salt may be formed from a lower mercurous compound Wurtz[15] says: "Bichlorid of mercury is easily reduced to the monochlorid or even the metallic state by many agents. Light will precipitate calomel from an aqueous solution, and many organic substances reduce the bichlorid to calomel or even to quicksilver, especially under the influence of light." In the face of these facts it can hardly be logically maintained that calomel shows a tendency to assume a higher state of oxidation. It also appears absurd to prohibit the consumption of acidulous food while administering calomel, the more so when we consider the presence of free hydrochloric acid in the stomach, and remember that this acid reacts with calomel only at a boiling temperature.

*Corrosive Sublimate.*—"Mercuric salts are converted into mercurous by sugar."[16] According to this view therapeutic doses of the bichlorid would change into calomel in the duodenum, but this calomel must by extremely minute division liberate much finer globules of mercury in its further reduction to black oxid and metal. But pancreatic conversion of the bichlorid into yellow oxid takes place in the duodenum, and this oxid is absorbed into the circulation, where its conversion may occur slowly into the most minute metallic globules. The fact that toxic doses affect mostly the esophagus and stomach shows that the extra amount of chlorin operates corrosively until the compound is changed by the alkaline pancreatic juice. The transformation of the yellow oxid would occur in the liver, or, if it remained long enough, in the intestines, by the glucose it would encounter, for the yellow oxid is reduced by glucose as well as is the black oxid, only less rapidly.

The bichlorid of mercury is not the only substance that will coagulate albumin, nor does it enter into chemic combination with albumin. Excess of the latter will dissolve the bichlorid, showing that the whites of eggs alone can not be relied upon as an antidote for the bichlorid of mercury.

A better antidotal method is to give at once an alkali, thus converting most of the bichlorid into yellow oxide; then white of egg, with demulcents, to allay the irritation caused by the corrosive chlorid. That this corrosive action is due to the chlorin liberated is evident from the fact that no other mercuric salt formed with another radical produces the distress peculiar to large doses of the bichlorid. Local applications of this salt are apt to be accompanied by severe effects, because the energetic material does not meet with as strong an alkali as it would in the intestines, and hence is not at once converted into a less active form. The blood, being alkaline, would gradually reduce it, but not until wide-spread, well-marked effects had been experienced. Doubtless the antiseptic property accompanies the mercury, in this soluble form, into the blood, adding to its efficiency as a remedy in syphilis, particularly where the disease is widely disseminated through the body and favoring the probability of syphilis being due to a microörganism. The sizes of the globules liberated from the yellow oxid formed from bichlorid of mercury are imcomparably smaller than those from calomel.

I have proved that corrosive sublimate is reduced partly into metal and yellow oxid in the pancreatic fluid, and part of the yellow oxid is reduced by the glucose of the intestine, the remainder undergoing slow conversion in the liver and blood, until the circulation contains the metallic form only, in a state of excessively minute division.

Chloral and chloroform each contain three atoms of chlorin, and resemble mercuric chlorid in coagulating albumin, and in having irritating and vesicating properties. Bernard believes that chloroform acts by temporarily coagulating the nerve cells. Albumin is given to antidote chlorinated water. Chlorid of lime and chlorin are both irritants; the former causes the same kind of gastro-intestinal inflammation as bichlorid of mercury. The metallic deposit is found on articles of gold worn next the person after taking mercury bichlorid, as well as in any other form. One tenth of a grain of red oxid taken twice daily in syphilis, resembles bichlorid in not causing salivation readily. In a case of corrosive sublimate poisoning, through a solution applied to the scalp in the dark by mistake for camphor water, local saturations with lime water alternated with whites of eggs rapidly disposed of the external distress, but strangury occurred, which doses of potassium iodid rapidly relieved. The kidneys had undoubtedly been occluded by the precipitated mercury globules.

The antiseptic effects of the bichlorid may be largely due to the phagocytic action of the minute globules released from the chlorin, which latter is poisonous to low plant organisms the smallness of the amount of chlorin being more than compensated by the nascent state. The metal in its mechanical form changes, and, in enveloping microörganisms, could be pictured as having ameboid peculiarities to a certain extent.

*Cyanid of Mercury.*—Some syphilographers prefer cyanid to bichlorid, claiming similar results from its use in the same doses, which shows that it was the mercury and not the material combined with it which exerted medicinal effects. As might be expected from the liberation of cyanogen in the stomach, none of the epigastric pains said to be caused by the bichlorid accompany the use of the cyanid. Cyanid is converted into bichlorid with hydrochloric acid. This may occur in the stomach, through the free acid there. A characteristic of cyanids is that the weakest acids decompose them with liberation of hydrocyanic acid. Its further reduction would be into yellow oxid, and the metal, as described above, under corrosive sublimate. Knapp's test for diabetic sugar with cyanid of mercury shows that sugar is very active in reducing the metal from this form, and this, I believe, explains its modus operandi. Differing from the other salts of mercury the cyanid is not decomposed by alkalies, so its conversion is through the stomach hydrochloric acid into bichlorid, then into yellow oxid, by the intestinal alkalies, and metallic mercury by glucose, which latter converts the cyanid direct into the metal, precipitating the same sized globules as does the bichlorid of mercury.

*Mercurous Iodid.*—A synonym for the protiodid was the "green iodid" (which term has been dropped by the pharmacopeia of 1890 in favor of yellow iodid). Some French importations of a yellow pill of mer-

[15] Dictionaire de Chimie.
[16] Miller's Chemistry, vol. II., p. 22.

curious iodid were examined by me at the request of a New York chemical manufacturing firm and I found that the yellow color was that proper to protiodid, and that the green powder under the microscope plainly revealed that it was composed of metallic mercury globules and the red biniod with some yellow protiodid. By recomposition $(HgI)_3 = Hg + HgI_2 + HgI$. The yellow iodid in the stomach heat could easily undergo this reduction and reintegration, but the acid stomach fluid and duodenal juices would separate the iodin and afford yellow oxid, and finally metal. If the mercurous iodid passed the pylorus unchanged it would more closely resemble calomel in its effects by resolution into black oxid and mercury and finally wholly into mercury. Schläfke says,[17] explaining an interesting point in this connection: "It has been frequently observed that the external application of calomel may give rise to severe inflammation of the conjunctiva, if used simultaneously with the administration of iodid of potassium internally." This, Dr. Schläfke explains by the formation of mercury iodate and iodid, which in the presence of common salt or iodid of potassium are soluble and act as caustics. He finds that if potassium iodid be taken twice daily, in half-grain doses, its presence can constantly be detected in the conjunctival sac. Dr. Plym. S. Hayes[18] detected metallic mercury in the urine of a patient who had been taking this salt. The patient developed renal symptoms which disappeared on the discontinuance of the mercury iodid, and were therefore regarded by Dr. Hayes as due to its causing emboli in the way previously described. An excessive dose reaching the kidneys unreduced would encounter urea enough to decompose more of the drug; the precipitate would thus occlude the uriniferous tubules and account for the congestion.

*Red Iodid of Mercury.*—The biniodid loses its iodin in the pancreatic fluid, though a small amount of the combination may pass into the circulation, there to be decomposed by the alkaline blood. It resembles the bichlorid in responding to reagents, and is as poisonous, another indication that the mercuric combination owes its activity as much to the *amounts* of the radical liberated in decomposition as to anything else. Topically the effects of concentrated iodin are obtained with mercurialization precisely as a similar application of the bichlorid exhibits the localized influence of liberated chlorin.

*Ammoniated Mercury.*—Hydrargyrum ammoniatum is prepared from the bichlorid, and to all intents remains corrosive sublimate, combined with ammonia. Its insolubility renders it ineligible for internal use. Pancreatic fluid acts upon it as upon bichlorid.

*Mercury with Chalk.*—Hydrargyrum cum creta is milder than blue mass. It does not contain the same percentage of metal, and the chalk does not maintain separation of the globules, which often are visible to the unaided eye. The metal in all the chalk mixtures examined was in larger spheres than in blue mass, hence the latter is much the better preparation.

*The Oxids of Mercury.*—The red oxid, as prepared by the pharmacopeial formula, contains mercury nitrate, and complete purification of the oxid thus made can not be accomplished without endangering the compound. In consequence it differs from the yellow oxid, though said to be an allotropic deutoxid, by its harshness and crystallization, the yellow being amorphous and much milder; but as it contains twice as much oxygen as the black oxid, just as there is twice as much chlorin in the bichlorid, the yellow oxid would, in obedience to this general rule, be expected to act more vigorously than the black oxid. The latter has been given in pill form in place of blue mass or calomel, according to Wood[19] and found to have identical effects. Dr. Christison[20] advises the use of black oxid ointment in place of officinal mercurial ointment.

*Turpeth Mineral.*—There has been much discussion over the chemic and physiologic properties of this preparation. After analyzing the contradictory statements of all accessible authors, I am justified in calling it a mixture of mercuric oxid and mercury sulphate, $HgO + HgSO_4$. It is an emetic like other metallic sulphates, and responds to all tests for the sulphate and oxid of mercury.

*Ethiops Mineral.*—According to the method of its preparation this substance is a mixture of sulphur and mercury uncombined, cinnabar and metallic mercury with sulphur, and sometimes a mercury sulphate.

*Cinnabar.*—Mercuric or red sulphid differs from the other mercuric preparations by being insoluble and undecomposed by alkaline solutions, consequently most of the dose will pass unchanged from the system, though some mercury must be liberated, for it acts rapidly as a mercurial. When used by fumigation, it liberates sulphurous acid gas and mercurial vapor. "In its native state there is reason to believe it has no action at all."[21] It may thus be regarded as inert, owing to its insolubility. Anything apparently inconsistent with this view may be accounted for by presuming that other forms of mercury accompany the dose as impurities. If any authentic record could be found indicating how long the Japanese had used cinnabar and other crude mercurial minerals it would throw light on the history of syphilis.

*Oleate of Mercury.*—With a vague, ill-defined idea that all mercurials depend for their efficacy upon their conversion into an oxid in the body, Dr. Marshall suggested, in 1872, the incorporation of mercuric oxid with oleic acid as an eligible substitute for the common ointment. Any chemist can see that in Marshall's process, or even later improvements in modes of manufacture of this preparation, the oxid must be destroyed. In fact, a precipitation of visible metal occurs, the weight of which is subtracted, plus its oxygen weight, from the original weight of the mercuric oxid used, and the invisible remainder is assumed to be mercuric oxid in oleic acid. Squibb's label on the oleate bottles reads: "This bottle contains — per cent. of mercuric oxid in oleic acid." By decanting off the liquid, further precipitation of the metal, as metal, can be found, and under the microscope beautifully uniform and minute globules of metallic mercury in countless numbers may be seen suspended in the oleic acid. A mechanical mixture of oleic acid and minutely divided mercury presented very nearly the same appearance, the globules wanting in uniformity, which can be remedied by permitting the mixture to stand some days, allowing the larger globules to precipitate. This settling may prove to be the cause of the minuteness and uniformity of size in Squibb's oleate. So, instead of a mercuric oxid being introduced into the system by inunction with this preparation, a simple mercurial,

17 Medical and Surgical Reporter, vol. XIII., p. 12.
18 Chicago Medical Gazette, Apr. 5, 1880.
19 Dispensatory, p. 1257.
20 Dispensatory, p. 1531.
21 National Dispensatory, p. 791.

reduced to such beforehand, is thus administered, and so acts. A Chicago physician applied the oleate several times to his axillæ, and soon after, on being dry-cupped, called the attention of Dr. J. S. Jewell (who was treating him for ataxia) to the presence of mercury globules visible in the cupping-glass. Prior to 1890 the yellow oxid of mercury was incorporated with oleic acid at a temperature of 74 degrees C. (165.2 degrees F.) which promptly reduced the oxid into metal. The later adoption of 40 degrees C. (104 degrees F.) merely delays the eventual reduction of the oxid. After I announced the instability of the oleate of mercury,[22] Squibb[23] noted the tendency of his oleates to deposit mercury, and offered the 20 per cent. strength only as more stable than those containing less quantities of metal. Nevertheless at the present day the oleate still has its "looking-glass" deposit on the bottom of the bottles, and when the "oleate" is microscopically examined the metallic globules will be found slowly floating downward or suspended in the oleic acid. The oleate is *not* a yellow oxid but is rather a finer unguent of the metal.

*The Bibromid* resembles corrosive sublimate in most respects, and the bromid calomel. Donovan's solution contains the deutoxid, and completes all the medical compounds. All seem to be reduced directly or indirectly to the metallic state. As the therapeutic differences of mercury preparations are ascribable mainly to the differences in sizes of the globules, an intermediate effect might be expected between the mercurous and mercuric doses, should the extremely divided black precipitated mercury from stannous chlorid and corrosive sublimate be used.

The preparations of mercury may be divided into:

1. Simple mercurials which contain metallic mercury in a finely divided state and which act mechanically in the system.

2. Mercurous compounds which decompose first into the black oxid of mercury and then into metallic globules of about the same size as those in the simple mercurials, only the sizes are more uniform.

3. Mercuric compounds which decompose into the yellow oxid and then into much finer globules of mercury than are yielded by reduction from the mercurous salts. Mercuric cyanid passing more directly into the metallic state by the action of intestinal sugar.

4. Sulphur and nitrogen compounds not generally used as medicines.

The proportions of excipient and metal in the simple mercurials are easily estimated. By calculations based upon the combining weights of the mercurous or black oxid group one grain of metallic mercury is yielded by the reduction of the following weights of the compounds: Black oxid 1.04, calomel 1.175, yellow iodid 1.635, bromid 1.40 grains. The mercuric or yellow oxid group contains one grain of metallic mercury in the following proportions of the different compounds: Yellow oxid 1.08, corrosive sublimate 1.855, red iodid 2.77, cyanid 1.77, bibromid 1.80 grains. Essentially, all the mercurous salts act alike medicinally and are closely allied in their effects to the simple mercurials, but calomel will always hold its position as the most preferable of mercurous salts because it contains the largest per centage of base with the exception of the black oxid, which would take the place of calomel were it not for the instability of the oxid. All the salts of the mercuric group, to which corrosive sublimate belongs, are based upon and decompose with alkalies into the yellow oxid of mercury, a dense amorphous powder, which further breaks up into extremely minute globules of metal in light, heat or deoxidizing agents such as sugar. These globules are, as a rule, incomparably smaller and more numerous than those obtained from the mercurous compounds. Micrometrically they number one hundred million to six hundred million globules to the grain. A dose of one-tenth of a grain of the bichlorid of mercury will contain, when decomposed by intestinal fluids, ten to sixty million globules. By spreading the solution over a square decimeter of surface, and precipitating with caustic potash solution, this area will show under the microscope a yellow powder. Glucose at the body temperature will cause these oxid particles to break into black points, which under high magnifying powers become apparent as mercury globules in the numbers mentioned.

*The so-called "Red Oxid of Mercury"* needs special reinvestigation, and I feel certain that sooner or later chemists will acknowledge it to be a nitrate, and that is not an oxid. In 1771 Priestley disengaged oxygen from potassium nitrate and three years later from a mercuric compound which he assumed to be an oxid because focused sun rays liberated therefrom a gas which supported combustion. Had nitrogen accompanied the disengagement of oxygen the result would have been the same, for nitrous oxid will also support combustion by parting with its oxygen which combines with the carbon and hydrogen of the candle, heat effecting the interchange. Nitrous fumes are given off by heating a mercuric nitrate. In processes for the conversion of the nitrate into the red oxid especial care is taken that nitrogen is included. Pharmacists have been vexed and puzzled over the reasons for some processes which afford promptly the characteristic red oxid crystals which at other times gave the yellow oxid only. Careful examination of chemical writings will show that whenever the yellow oxid is precipitated from a soluble salt it has been by a process which will exclude nitrogen and that whenever the so-called red oxid is formed nitrogen is included even if it abstracts it from the air direct (in spite of the assumed inertia of atmospheric nitrogen), or its free ammonia, as when the yellow oxid cools in the test tube and becomes red. The yellow is amorphous and is physiologically milder, and prepared in the absence of nitrogen. The red is crystalline and is harsh in its action when taken internally, and it can not be made when nitrogen is excluded. It is a mere assumption that the red is an allotropic form, and there are better reasons for believing it to be an insoluble subnitrate belonging to the great list of nitrates which mercury is more capable of forming than any other metal.

The mechanical color changes of mercuric iodid are not comparable to the differences between the red and yellow oxid tints, depending upon chemical associations. The U. S. Dispensatory acknowledges that complete purification of the oxid from the nitric acid can not be effected without endangering the compound. The British pharmacopeia calls it nitrico-oxidum in recognition of the derivation and probable dependence upon nitric acid for its characteristics.

The following tables will enable comparisons of the wide dissimilarity between the two compounds:

[22] Western Druggist, 1881.
[23] Semi-annual price list, No. 51, 1884, p. 15.

| YELLOW OXID. | RED OXID. |
|---|---|
| Prepared by precipitating mercuric solution with KHO. Forms yellow amorphous powder. When prepared in any way nitrogen capable of combining is excluded. | Prepared by heating nitrate of mercury until red fumes cease. Forms red crystals. When otherwise prepared, as in air, forms with difficulty, owing to nitrogen not readily combining, but nitrogen is never excluded. |
| Has been proven to be an oxid. | Has not been proven to be an oxid nor has it been found apart from nitrogen and responds to tests for subnitrate. |
| Mercury forms only two oxids, the black and the yellow. | Mercury forms more nitrates than any other metal and unknown nitrates exist. |
| Combines readily. | Combines with difficulty. |
| Forms mercuric oxalate with cold solution of oxalic acid. | Does not form oxalate. |
| Readily forms oxychlorid with $HgCl_2$ solution. | This change is very slow. |
| Boiled with potassic bichromate it yields basic mercuric chromate $HgCrO_4 2HgO$. | Similarly treated forms basic salt with large proportion of base $HgCrO_4 3HgO$ (Millon.) |
| Does not blacken on heating. | Blackens on heating (assuming the color of mercurous oxid). |
| Nitrogen in some form is required to convert it into the red oxid. | Neutralizing its acid solutions precipitates the yellow oxid, thus abstracting nitrogen. |
| Its physiologic action is mild and not escharotic. | Its physiologic action is harsh, irritating and escharotic, and like other metallic nitrates. |

*The Toxicology of Mercury.*—Where hydrargyria had been induced let us assume that in three months exposure to mercury fumes at the rate of a gram per day (which in quicksilver works can be considered a very moderate figure), and allowing one-half of this to have been excreted, there would remain forty-five grams of mercury lurking in the vessels, bones, viscera, muscles, etc., capable of division into thirty-three hundred and seventy-five million particles. Distributing these about the body by probabilities we can estimate three hundred million concerned in producing ptyalism through the parotid, submaxillary and sublingual glands and branches of the internal maxillary artery, with a portion (say a million) bearing directly upon the cerebro-spinal centers through the carotid and basilar arteries. The condensation of any thousand of these globules in certain areas would be enough to produce nervous effects from chorea to paralysis.

Naunyn[24] says that living flowers serve as the most delicate reagents for detecting such dangerous impurities in the air, they die very rapidly in an atmosphere containing mercury. A gold leaf becomes rapidly coated in such exposure, and wood painted with flowers of sulphur becomes brown on the surface, owing to sulphid of mercury formation. It is not possible for a plant to live with its cellular interspaces, through which pass nutrient fluids and gases, clogged up with multitudinous particles of metal, and this is the exact condition of the poisoned plant under microscopic examination. Parasites with small tubular structures such as respiratory tracheæ are actually suffocated by these little bullets lodging in these passages. I demonstrated that mercurial ointment killed bed bugs by occlusion of the spiracles, tracheæ and alimentary canal, a condition readily determinable by low magnifying powers.

All quadrupeds whose heads are frequently below the level of the spinal column would be most liable to have mercury accumulations in the vessels of the brain and cranium when poisoned by mercury, and Taylor[25] observes that "ruminants are easily killed by mercury ointment; their lungs are congested and head drops to the ground." That the mercuric salts are reduced to the metallic state is shown also by their elimination as metal in urine, faeces, bile and sweat. The yellow oxid and a carbamid are precipitated from soluble salts of mercury in urine. The filtrate throwing down no precipitate with caustic potash shows that all the mercuric salt is decomposed. An excessive dose reaching the kidneys would encounter urea enough to reduce more of the poison which would occlude the uriniferous tubules and account for the congestion and transient albuminuria.

RECAPITULATION.

1.—Mercury acts mechanically as a deobstruent upon the glands and lesser tubular strictures, by virtue of its unstable chemic properties, its volatility and great weight.

2.—Its condition in the fluids and tissues is that of finely divided globules of the metal numbering upward of one thousand million (one billion, French) to the cubic centimeter, and as a vapor of the metal. In whatsoever form it may be taken, it is quickly precipitated as mercury, and without change is excreted or retained in the system, mainly in the bones.

3.—It cleanses the intimate visceral tissues by projecting from them materials of less weight, and in this way breaks up, removes or prevents morbid accumulations. In excess it occludes the tubular parts, and may produce any of the phenomena attending stasis of vital operation anywhere about the body, such as ulceration, congestion, paralysis, anemia, etc.

4.—The liver and inferior maxillary region for anatomic, and the former for physiologic, reasons receive most of its primary influences.

5.—It can be given in larger doses in warm weather or climates, because heat favors its elimination, systemic effects decreasing necessarily in proportion.

6.—Its antiphlogistic properties are merely deobstruent and detergent.

7.—Its value in syphilis is owing to its acting in the line of least resistance, breaking up any nidus the disease may form. The ability of the metal to envelop and carry microörganisms gives it an ameboid or phagocytic value. In phagedenic ulcerative processes it would be contraindicated, because the degeneration is too rapid to be effectually reached by mercury, which is not the case in slower-forming specific ulcerative stages. Its administration in these diseases could be regulated by the rapidity of degradative processes. Comparatively slowly acting morbid centers, or those of a congested nature, could be improved by mercury where the drug would only accelerate rapid tissue destruction.

8.—It is tonic, by increasing red blood globules whose formation has been prevented by glandular perversion, the metal removing the obstructions toward their formation, while in overdoses anemia is produced by occluding the vessels it, in small doses, cleansed.

[24] Ziemssen, p. 618.

[25] On Poisons, p. 353.

9.—The solubility and consequently superior penetrability of the bichlorid is probably productive of the mercurial characteristic effects which seem out of proportion to the amount of metal in doses of this salt; but it is not to be denied that chemic or direct neurotic influences coöperate with the metal in the more active preparations, and thus possess features of their own.

10.—Experimental evidence is opposed to probable formation of any compound in the body, and supports the belief that decomposition invariably and almost instantaneously follows its ingestion with the precipitation of mercury as minutely divided globules, from any preparation of which it forms the base.

## PUERPERAL ECLAMPSIA AND ITS TREATMENT.

Read before the Marion County (Ind.) Medical Society.

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In presenting this paper, with the reports of the cases which have come under the writer's observation, together with the treatment and results, it would be ingratitude not to mention the name of the late Dr. Ellerslie Wallace, of Jefferson Medical College, Philadelphia, who, after a large experience, taught with emphasis the value of venesection in puerperal eclampsia. His hand with which he emphasized his words, with a deformed index finger, the result of a dissecting wound, was not more apparent to me when he said relative to this subject "you are on a life saving mission; do your duty fearlessly, and bleed for effect, not for ounces of blood," than when at the bedside of my first patient with eclampsia. It occurred in 1871 in the case of Mrs. W., primigravida, aged 35 years. Labor was slow and a severe headache was complained of which did not yield to free administration of bromid of potassium. After four hours of moderately hard labor the patient complained of intense throbbing pain in the head, sudden fright and blindness, followed almost immediately by a violent convulsion. As soon as the convulsion subsided, preparations were made for venesection, but before it could be done a second convulsion came on. Without further delay the arm was constricted and a large stream of blood allowed to flow. A third convulsion came on while the blood was flowing. After this convulsion passed off the patient's face, which had been dark, swollen and distorted, became pale and placid, the pulse became weak and thready. The bandage was removed from the arm and the flow stopped. The os uteri was pretty well dilated and with the assistance of Dr. S. C. Dove, of Westfield, Ind., whose office was less than a mile away, the patient was delivered of twins, both of which were still. A good recovery followed.

Mrs. G., now of this city, had convulsions with two confinements, and also early in a subsequent pregnancy. Dr. Rodman, of Zionsville, now of Denver, saw her during her first attack. She had some fifteen convulsions before bleeding, none after, and two hours later she was delivered of a mascerated child. In her second attack Dr. N. G. Harold, of Carmel, Ind., saw her with me. She had had seven or eight convulsions before my arrival. She was large and plethoric and an unusual amount of blood was required to produce the desired effect. Labor advanced slowly and in about two hours she was again seized with a convulsion. The vein in the opposite arm was opened after which there was no more trouble, and as soon as dilatation was sufficient to admit of the application of the forceps she was delivered of a still child. When six months advanced in a subsequent pregnancy this patient had violent throbbing headache, a slight convulsion, clouded memory and intellect, all of which were immediately relieved by venesection. This treatment was repeated twice for the same symptoms, with the same happy results, before her term expired, when she was delivered of a healthy child, having no return of convulsions.

Mrs. W., lived at Nora, Ind., now of this city. She was delivered in her first confinement of a healthy child without unusual labor or other symptoms. Some two hours later she was seized with convulsions which were terrific in violence and came in quick succession. She had eighteen or nineteen convulsions, some of which were observed by Dr T. M. Hinshaw, who now lives in Westfield, Ind. On my arrival the doctor and the husband considered the case hopeless, and, indeed, it looked as if their opinion was correct. The patient was profoundly comatose, face almost black, swollen and distorted, leaving no trace of its former likeness, pulse quick and wiry, temperature high. As soon as the convulsion passed off a vein was opened and a large stream of blood allowed to flow. The amount drawn, though large, was disregarded, but the effects were eagerly watched. The face blanched, the pulse became thready and soft; the bandage was loosened. No more convulsions followed. The patient returning to semi-consciousness the next day heard her baby cry and exclaimed, "Whose baby is that?" Her recovery was not retarded. Her memory was thoroughly obliterated for a period of two days before and four days after delivery.

Mrs. S., multipara; a patient of Dr. W. O. Harland, now of Chicago. This patient was neither anemic nor plethoric. Soon after delivery she was seized with violent convulsions. She had taken chloral and chloroform without effect, and had had six or eight convulsions before my arrival. After a moderate bleeding convulsions subsided for a time. After an interval of two or three hours' rest, convulsions returned. Her pulse was hard and quick and the temperature was high. Blood was again drawn but in larger quantities, leading Dr. Harland to think the danger point was reached. In a letter received from Dr. Harland a few days ago, in answer to inquiry concerning this and another case, he says "we stopped the convulsions in Mrs. S., but we had to bleed her nearly to death to do it." The danger was more apparent than real. She had no more convulsions and was up and well in the usual time. A subsequent pregnancy was attended with a throbbing headache, disturbed vision, congested face and clouded memory, at the sixth month. A vein was opened and while the stream still flowed the grateful patient exclaimed "Oh, what a relief!" These symptoms reappeared at the seventh and eighth months, and the patient sought relief by the lancet both times. The delivery of a healthy child at term was normal.

Miss P., primigravida, also a patient of Dr. W. O. Harland. Convulsions came on early in her labor. She was freely bled after she had had five or six convulsions. The intervals were lengthened, but an occasional convulsion came on until the os was sufficiently dilated to admit the application of forceps. She was

delivered of a still child, after which she had no more convulsions. She made a good recovery.

Miss H., primigravida. Large, strong, domestic; walked four miles to the house of an acquaintance. She was dazed and unable to give an account of her visit or from whence she came. In a short time she was seized with a convulsion. My arrival was delayed some hours on account of the messenger bearing no intelligence regarding the nature of the case. On my arrival five hours after the first convulsion she was comatose; her tongue was lacerated and bleeding. The family in whose house she was had no knowledge of her labor nor her pregnant state. An examination revealed both, the os being considerably dilated. Her convulsions had been frequent and severe, according to her great muscular development. After venesection she had no more convulsions. She shrank from her pains, and being unconscious the assistance of two strong men of the neighborhood was required to hold her in position in the bed. In about two hours, dilatation was sufficient to admit of the application of forceps, when she was delivered of a large still child. The return of consciousness was deferred thirty hours after delivery.

Mrs. D., multipara, was attended in her labor by Dr. Leavens. She complained of blinding, throbbing headache during the progress of her labor. This was lightly regarded, the physician thinking it would subside after delivery. Labor terminated at 4 o'clock P.M. At 2 o'clock the following morning a summons reached me. She was in a convulsion when the messenger started, and was in a stupid state on my arrival. A vein was opened and about a pint of blood taken when, the patient expressing a feeling of relief, the bandage was removed. Thirty minutes later she was attacked by a second convulsion. The vein in the opposite arm was opened and the blood allowed to flow until the face became pallid. The patient being large and plethoric a large quantity of blood was required. No further trouble followed and the patient's recovery was not retarded by the loss of blood.

Mrs. K., of Mattsville, Ind., was seized with a convulsion during her third confinement. The premonitory symptoms were pronounced and a vein was opened just as a convulsion came on. A healthy child was delivered an hour later and her recovery was uneventful.

Mrs. S., primigravida, was attacked with convulsions while under the care of Dr. K. C. Hershey, who then lived at Mattsville, Ind. The convulsions were hard and came in rapid succession. She had a large but uncounted number before my arrival. Her pains had been constant, severe and distressing, but not of an expulsive character. Free bleeding resulted in temporary relief. Examination revealed dilatation to the size of a silver half dollar, and the os presenting high up against the sacrum, the result of obliquity of the uterus. Gentle pressure against the fundus and slight traction with the finger brought the os down to its proper position, when the labor pains became strong and normal, with intervals of rest. Consciousness returned so that the patient conversed intelligently. After waiting three hours the patient was left in the care of Dr. Hershey, the attending physician. After some time had elapsed he was called away from the bedside. The history of the case shows that the pains lost their distinct character, becoming constant and distressing. After four hours intermission the convulsions reappeared. On my arrival in answer to a second summons the patient was in a moribund condition and soon expired. At the request of the husband and with the assistance of Dr. Hershey, the child was removed by Cæsarean section. It was a perfect child, but as we expected, after so many convulsions, it was still.

Mrs. C., large, fleshy patient in fourth confinement. Had complained of throbbing headache for two days. A hurried messenger came with the report that she had fallen on the floor and they thought she was dying. Her term had expired and an examination revealed a dilated os, although no uterine pains had been complained of. She was in her fourth convulsion on my arrival. Her mouth was bleeding from laceration of the tongue. A vein was opened and a stream allowed to flow until the dark congested condition of her face gave place to pallor. Two hours later a still child was delivered and she made a good recovery.

Mrs. S., now living in Kansas; during her first confinement was seized with a terrific convulsion. This was in all respects like a puerperal convulsion, but the patient having occasionally had epileptic symptoms, this was at first thought probably of that character. Chloral hydrate and bromid of potassium were freely given but in less than an hour a second convulsion came on which was followed by stupor and continued congestion of the face. My conclusion was that, although a slight epileptiform manifestation had been observed once or twice a year, this was puerperal, and fearing death of the child and danger to the life of the mother if the convulsions were repeated, she was bled until the desired effects were produced. No more trouble followed and she was soon delivered of a healthy child. It is a matter of regret that examinations of the urine were not made in each case reported. In the four cases in which analyses were made, there were traces of albumin in two. Those who have had the misfortune to witness cases of puerperal eclampsia will readily appreciate the delay which would attend such examination before treatment. The patient and child are in great danger and the necessity for prompt action engages the physician's time and attention. Whether there is or is not albuminuria, although of scientific interest, is at the instant of little importance. The treatment which relieves in the one case also relieves in the other.

The etiology of puerperal eclampsia is not definitely settled. Perhaps Löehlein covers the ground by stating that "no explanation of eclampsia has been fully established, and the disease has certainly more than one cause." Albuminuria is present in a majority of the cases, but this is not sufficient to afford a positive decision that the condition of the kidneys which produces albuminuria is the cause of eclampsia. Albuminuria is said to be present in five cases of pregnancy to one of eclampsia. It is pretty generally conceded that, whether the case is one of eclampsia gravidarum, parturientium or puerperarum, the arterial pressure is high, and this is true whether the blood is rich in red corpuscles or not. This condition may depend upon the action of the vasomotor system, or to increased volume of the circulatory medium, or both. The kidneys become clogged by congestion resulting from high tension, and their function is partially suspended, in which case albuminuria may or may not be present. Women in pregnancy are much inclined to accumulate flesh and when constructive metabolism is in excess of destructive meta-

bolism, toxemia and plethora are simultaneously present. When albuminuria is present, unless chronic, the patient recovers without delay after cessation of convulsions, when the pressure is removed allowing the kidneys to assume their normal state. As a rule, the condition of the patient who is to become an eclamptic is not incompatible with comfortable health; the foudroyant out-break being the first announcement of departure from the physiologic state.

Reflex uterine irritation is said to be a cause of eclampsia in some cases. The fatal case of Mrs. S. reported above, is probably one of this class. Obliquity of the uterus disturbed the normal expulsive character of the pains. When the uterus was righted the constant grinding, distressing pains ceased, giving place to normal labor. When left without support obliquity again took place, with disturbance of normal labor pains, and reappearance of convulsions. While in this case the obliquity seemed to be a disturbing factor, it is well known that such obliquity not infrequently exists without such disturbance. It would seem to be an interesting and curious fact that mal-presentations are very rarely attended with convulsions. The cases reported in this paper were all vertex presentations with the face to the right or left sacro-iliac synchondrosis. Dr. King asserts that convulsions scarcely ever occur in cross or shoulder presentations. A Dublin obstetrician says (Dublin *Journal Medical Sciences*) that there is little fear of eclampsia if the child does not present by the head. This refers to eclampsia during labor; certainly not to cases occurring months before. There are exceptions to this rule. In a series of fifty-nine cases reported by Ramsbotham there were four breech presentations.

The annual of the *Universal Medical Sciences* for 1895, records the researches of Rapin and Monier, who examined the blood of four women with eclampsia, and in three of the cases found a special bacillus, which they were able to cultivate, and when inoculated into animals caused symptoms of eclampsia.

Chamberland has experimentally proved that some poisonous element is present in the blood of eclamptic women, but the exact nature of the poison, or its origin, have not been determined. A rabbit is killed by the injection into its tissues of healthy human serum, when injected in the proportion of ten grams of the serum to every kilogram that the rabbit weighs. Chamberland has experimented extensively with the blood of eclamptic women, and has found the amount of serum of such blood necessary to kill a rabbit is less than the serum from a healthy person. In some cases one-half, and in others less than one-third the proportionate amount is sufficient to prove fatal.

It is believed by some investigators that the liver may have something to do with some of the cases of puerperal eclampsia. The healthy liver modifies certain poisonous elements brought to it from the intestines through the portal vein, and impairment of the liver which would wholly or in part, destroy or suspend this function would admit to the blood substances freighted with toxic properties. Hahn, Masser and others have shown by experiments, by which the blood from the portal vein is emptied directly into the circulation, thereby depriving it of passage through the liver, nervous symptoms similar to those of eclampsia are produced. This is especially pronounced when the experiment is made after the ingestion of meat. Their deduction is that these symptoms are due to the presence of carbamic acid in the blood, a substance which in passage through the liver is converted into urea. Further experiments show that when carbamic acid is introduced into the circulation not only the nervous symptoms are developed but the urine becomes scanty and albuminous.

Women in their first pregnancies, and also those who have more than one child in utero are most susceptible to eclampsia. Of the fourteen cases reported in this paper six were in cases of primipara, one of which had twins. In reference to the frequency of convulsions statistics are variable. The total number of deaths from eclampsia reported to the Board of Health in New York city in the nine years ending in 1875, were 408. The estimated maximum number of deliveries during that period was 284,000, or nearly one death in 700 confinements.

The vital statistics furnished by the Indiana State Board of Health show the number of children delivered during twelve years and nine months to be 452,429. Deducting one birth from each case of doubtlets and two from each case of triplets the approximate number of labors represented in these reports is 449,000. The number of deaths reported from eclampsia during this period is 440 or one in 1,020 deliveries. One series of 100,935 deliveries in the Philadelphia Board of Health reports, shows 94 deaths from eclampsia, or one in 1,073 confinements. Of women attacked Hecker found 1 in 522; Wieger 1 in 519; Kleinwächler and Galabin 1 in 500; Korman 1 in 600; Corson 1 in 300; Cazeaux 1 in 200 deliveries. It is estimated by some authors that the average is 1 in 500 labors. The health reports show the deaths only, but if this average is correct about 50 per cent. of the patients die. Parvin places the percentage of women attacked at 1 in 250 or 1 in 300 in this country, and if this is correct the death rate from this cause as compared to the number of patients affected is reduced to about 28 to 30 per cent. Dr. Kemper, of Muncie, had nine cases of eclampsia in his one thousand labors reported. Eight of the women recovered and one died. After reference to the great fatality which attended eclampsia in the seventeenth and eighteenth centuries, Ramsbotham says in his work on obstetrics, "few cases now terminate unfortunately; and the favorable results are to be attributed to the extent to which bleeding and other evacuant means are carried."

Patients who are bled in this disease do not suffer from anemia on account of the depletion, but regain their normal strength and color, and as a rule, are out of bed as early as though nothing unusual had transpired. Prof. Fordyce Barker insisted upon the unmistakable clinical evidence favorable to the employment of the lancet, and pleaded for its restoration in the management of puerperal eclampsia. Lusk says the claims of bleeding in eclampsia rest upon a substantial foundation, and that its special advantage lies in its prompt action.

Speigleberg says, "No means so quickly lessens arterial pressure, none so quickly restores their function to the kidneys, irritable from blood pressure, and few act so readily upon the excited vasomotor nerves, causing relaxation."

Patients with eclampsia are never able to sit while the operation is made, consequently a larger quantity of blood is required to produce the desired results than if the sitting posture could be assumed. It is

much better not to bleed at all than to bleed inefficiently. While the loss of a small amount of blood will do no harm it can do no good, and therefore it brings probably the very best life-saving remedy in eclampsia into disfavor and disrepute.

The life of the child in eclampsia parturientium is endangered by each succeeding attack, rarely persisting after the fourth or fifth convulsion. In proportion to its relative prompt action the life of the child and also that of the mother are enhanced by venesection. In claiming for the lancet a clean, safe, prompt, efficient and ever at hand remedy, the value of other remedies is not ignored. Dr. L. J. Hammond, Secretary of the Staff of Maternity Hospital, of Philadelphia, has kindly furnished me a history of nine cases which occurred in that institution during the last five years. All but one occurred in primigravida, and three women died. The treatment relied upon is depletion by purgation; chloral and bromids per rectum, veratrum viride, hot packs and anesthetics during the seizure, oleum tiglii is the cathartic relied upon. Two of the cases which recovered were bled, one to the amount of twenty-six ounces.

In answer to a letter addressed to the Philadelphia Lying-in Charity and Nurse School, Drs. W. Reynolds Wilson and Della M. S. Walker kindly prepared for me a table of the nine cases which occurred in that institution during the last four years. Previous history was negative in all the cases but two, one of which had vomiting of pregnancy, and the other had previous dropsy. These two patients died, the other seven recovered. One of the patients that recovered had sixteen, one had ten, one had three, and three had two convulsions. One of the patients who died had one, and in the other the word "frequent" takes the place, in the column, of the figure designating the number. The patient who had sixteen convulsions was bled. The others were treated by chloral, morphia and calomel. One exclusively by purgation, except that chloroform was used in all for the paroxysms. The average number of convulsions in these cases is small, owing doubtless, to the fact that the patients were in the hospital under the immediate attention of the physicians who were equipped with everything needful, thus securing prompt relief before the patients became so profoundly influenced. Whether the poison contained in the blood of an eclamptic acts directly upon the cortical cells of the brain is not demonstrable. It is a reasonable position to assume that it does, and that this poison, as well as reflex irritation from abnormally painful uterine contractions, disturb the cell power to control energy. The result is sudden liberation of energy manifested in a convulsive seizure.

Chloroform, chloral and morphia lessen reflex irritability and paralyze cell energy, thereby aiding in holding convulsions in abeyance; while diaphoresis, purgation and venesection relieve arterial tension and eliminate the poison.

The high arterial pressure which is almost universally present in eclampsia has lead many practitioners to believe that this disease does not occur in patients who do not bear depletion. Morphia, chloral and chloroform have been used with excellent results in a large number of cases. These agents may be used with advantage after depletion, or in the early history of an attack. After a patient has had a large number of convulsions and is in a state of coma, or near it, the administration of such drugs is not likely to prove beneficial. Chloroform has been recommended and given in full anesthetic doses for the purpose of completely paralyzing the motor centers. There is much danger from prolonged anesthesia carried to the surgical degree, and added to coma, or tending coma, resulting from convulsions, it is capable of doing irreparable harm. The same may be said of large doses of morphia and chloral.

Dr. W. Reynolds Wilson, in his article on "The Use of Morphia in Eclampsia, with a Report of Two Cases," published in "The Annals of Gynecology and Pediatry," June 1892, a reprint of which the author has kindly furnished me, discusses this subject pretty thoroughly. In the second case reported by Dr. Wilson, morphia was given hypodermically in doses ranging from $\frac{1}{4}$ to $\frac{1}{2}$ grain. The history of the case shows the drug had a partially controlling influence, but "the patient was bled on account of vascular tension, shown in the congestion of the face, and throbbing of the arteries." Fifteen ounces were abstracted after which the patient had no more convulsions, but the morphia was continued and served a good purpose in controlling the restlessness.

Veratrum viride has been successfully employed in some cases reported. In large doses it slows the pulse, and as expressed by Hare, it "bleeds the patient into his own vessels" by filling up the mesenteric veins and thereby relieving arterial pressure. Dr. Fearn, of Brooklyn, in his article published in the *American Journal of Obstetrics* on "Veratrum Viride in Large Doses as a Substitute for Blood-Letting in Puerperal Eclampsia" recommended the tincture of veratrum viride in doses ranging from fifteen minims to a teaspoonful repeated every five or ten minutes until the pulse became soft or vomiting occurred. After the arrest of convulsions he recommended the continuation of the drug for some hours in smaller doses and at longer intervals keeping the pulse below fifty per minute. In each case reported in this paper a very large dose of some active cathartic was given. Nitrite of amyl was used by Dr. W. F. Jenks, of Philadelphia, on the suggestion of S. Weir Mitchell. Ether had been used without avail. The inhalation of a few drops of nitrite of amyl immediately arrested the convulsions, but the patient had a dangerous uterine hemorrhage, which was attributed by Dr. Jenks to the action of the drug. The opinion of Dr. Jenks is corroborated by the experience of Dr. A. W. Brayton, of this city, who met with a dangerous uterine hemorrhage following the administration of one-fiftieth grain of nitro-glycerin, the action of which is similar to that of nitrite of amyl. The drug was given as a cardiac stimulant in a case of palpitation of the heart in a woman who had been delivered six days before.

Delivery should be faciliated in cases of eclampsia parturientium, when labor is difficult, and where the os uteri is dilated, by the application of forceps, or podalic version. Dilation may be hurried by the use of the colpurynter. A method has been proposed and practiced by Dührssen of Berlin which in his hands seems to have proved highly satisfactory. When the cervical canal is opened up, and the obstacle to delivery is the undilated os externum he makes four incisions reaching from the margin of the os up to the utero-vaginal junction. This he claims leaves no further obstacles to the delivery of the child, which can readily be effected without any fear of tearing the soft tissues. Thirty-five cases were treated by him, by this method, according to his published report, with-

out the loss of a mother, and with a loss of only two children. The technique of this operation is explicitly stated in his report.

There is great danger to the life of the unborn child in cases of eclampsia. Its death not unfrequently occurrs during the first convulsion, often during the second, and after a number of convulsions the child is rarely born alive. The child is profoundly influenced and if its life is spared until birth it may die in convulsions soon after, as was the case with two of the cases reported by Drs. Wilson and Walker, of Philadelphia, and a case reported by Spence which was removed alive by the Cæsarean section, the mother having died from eclampsia before there was any disposition to labor. Respiration is suspended during the early part of an eclamptic seizure, and is very imperfect until the attack passes entirely off, thus adding to the already bad condition of the maternal blood, rendering it inadequate to act as an oxidizing and purifying agent for the infantile circulation through the placenta. It is therefore fair to say Dührssen's cases must have been selected and operated upon immediately after the onset of the convulsions, otherwise more than two still births would have occurred in thirty-five labors. This is a possible illustration of the effect which over-enthusiasm has on statistics.

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## TRAUMATIC CARIES OF CERVICAL VERTEBRÆ.

### A CASE WITH REPORT OF THE POST-MORTEM.

BY L. G. NORTH, M.D.

TECUMSEH, MICH.

Mr. R. J., aged 34 years, unmarried, an Englishman by birth and a resident of this country for fourteen years. By occupation a farm laborer and ditcher. In build very muscular, and rather thick set. He had great endurance, taking pride in the amount of work he could do in a day. His habits were all good, and when questioned in regard to syphilis asserted positively to the end that he had never known a woman.

About the middle of December 1894 while at work in a pig-pen he suddenly slipped and fell violently striking his right infra-mammary region upon the top of a low door, and falling from the door to the floor. He was aware that he bumped his head, but the injury to the side was the only one that he thought of any account.

From the time of the accident he was aware that he was not right, having pain in the right mammary and infra-mammary regions with constant shortness of breath. For this he consulted a physician and took medicine and used local applications for about two months, without decided improvement. About the middle of February 1895 while in the post office in a country store he was suddenly taken with a violent "catch" or "crick" in the back of the neck. He was able to get into a chair and from there on to a couch or settee, from which place he was not able to be moved for some five or six hours. From that time to the time of his death he was not able to turn his head or bend his neck without severe pain, and in fact did not move his head at all without supporting it with both hands. A favorite "hold," when it was necessary to move was with the left hand behind the occiput and the thumb of the right hand under the inner end of the supra-orbital ridge of the right eye. When not moving he often lay for a long time in this position. Following the severe attack above mentioned he continued to have pain in the right mammary and infra-mammary regions with soreness on motion, pressure and respiration, and before coming under observation of the writer he had two more similar attacks. The writer subsequently elicited the facts that the attacks occurred suddenly when the patient was somewhat improved and on assuming a vertical position. It was at first asserted that the second attack occurred in the night when the patient was in bed, but close questioning elicited the fact that he had risen to attend to a call of nature. During and between these attacks he had fever and acceleration of pulse but to what degree the writer was not able to learn. Soon after the first attack he began to cough and expectorate freely a muco-purulent material. The attending physician had counsel, but a definite diagnosis was not reached. The case came into the hands of the writer May 5, 1895. The patient was found lying on the right side with the head turned slightly to the right and with the chin near the right clavicle. He continued to occupy this position most of the time for the next six months, turning on the back occasionally but preferring the former position. He was not able to get on, or remain on, the left side at any time. When first seen by the writer the temperature was 101.5 F. and the pulse 120. He was still coughing and expectorating the muco-purulent matter. The writer was told that a sample had been sent to a microscopist of Detroit, who had reported himself unable to find any bacilli of tuberculosis. Another specimen was then sent to Ann Arbor and a similar report received from the microscopist in the University Laboratory. The patient was in fair flesh and though he had been told by his former attendant that his prospect of getting well was small he was in good spirits and very hopeful. He was in full possession of all his faculties and functions except those mentioned above. There was no material difficulty of deglutition, but the mouth could not be widely opened, and the appetite was fair. On account of the extreme sensitiveness of the neck it was impossible to make a satisfactory examination. Distortion of the spines of the cervical vertebræ was suspected, and sought for, but could not be demonstrated with certainty. A moderate blow on the top of the head with the hand caused pain in the vicinity of the cervical vertebræ. Pressure over the spines was not as painful as pressure at the sides of the neck about opposite the bodies of those bones. Percussion over the lower portion of the right mammary region elicited diminished resonance, and auscultation revealed diminished vesicular murmur over the whole mammary region of that side. Within a month the cough and expectoration first diminished and then completely ceased and did not return. The temperature continued uniformly and invariably in the immediate neighborhood of 101 F. for more than six months and the pulse continued for the same length of time between 80 and 120, being generally above 100. The slight fluctuations of temperature that occurred were without assignable cause, so far as could be determined. Within the first fortnight of the writer's attendance he discovered on auscultation a distinct friction or crepitation sound over the whole lower part of the right chest. It continued for about a week and then permanently disappeared, and vesicular murmur increased but never reached the normal. As the percussion note was nearly flat in the infra-mammary and infra-scapular regions effusion was suspected

and the needle of a hypodermic syringe freely used but without discovering any fluid.

At his third visit on May 9, the writer announced the title of this article as his diagnosis. On July 24 it was found absolutely necessary to move the patient to another house some four miles distant. The moving was done with the greatest care on a spring mattress in a spring wagon, on a good country road, and with the patient protected from sun and wind. Notwithstanding these precautions he complained of much pain and nausea and vomited several times during the journey.

At this point in the patient's history he became a township charge and the officer of the township desired to take him to the county poorhouse some ten or twelve miles distant. This desire caused a controversy between the official and the attending physician. The latter affirmed his diagnosis and expressed the opinion that to make the long removal would be dangerous to the patient's life. His opinion finally prevented the removal. In the light of subsequent events the correctness of the position is fully confirmed.

In August a small puffy tumor made its appearance directly under the right nipple and over the sixth and seventh ribs. It was about two inches in diameter and was raised above the surface about five-eighths of an inch. Careful examination now revealed the fact that the continuity of the sixth rib was broken, and on a few occasions crepitus was elicited. The swelling was without discoloration and seemed to fluctuate, but the hypodermic needle repeatedly used failed to find fluid of any kind. The pain in this region still continued but the tumor was not much more sensitive to pressure than the surrounding skin, and the temperature of the part seemed the same as the rest of the body. In October another similar swelling appeared over the upper end of the sternum. It was some larger than the first and was more painful during its growth but was rather less sensitive to pressure than the other. Careful exploration with a hypodermic needle, and also a grooved needle, by the attending and by two other physicians who saw the case, failed to obtain fluid of any kind.

This last tumor for several weeks had a distinct pulsation but there was no bruit. Crepitus was frequently elicited with the fingers of one hand on the right clavicle and the fingers of the other hand over the upper part of the sternum. The nature of these tumors was a matter of much question and their relation to the disease in the back of the neck a difficult problem. Professional friends suggested that they might be malignant. As early as the middle of July it was noticed that while his face was full and of good color his lower limbs and the lower part of his body were emaciating very markedly. At this time there was no motor paralysis or loss of sensation of any part, but it was evident that the nutrition of the parts was suffering. The patellar reflexes were exaggerated. About the first of November the temperature suddenly dropped to the normal for a very few days without assignable cause. Immediately following this the first signs of paralysis appeared and within ten days he entirely lost the use of both limbs. Sensation was not affected more than that the patient said his feet felt sometimes as if they were asleep. The patellar reflexes were still slightly exaggerated, and the reflex action of the spinal cord most marked. When the bed clothes were lifted or when the limbs or feet were stroked or handled they would spasmodically contract with such violence that he would complain of the pain that the motion of the body caused in the back of the neck. At the first appearance of paralysis he was put upon strychnin sulphate, but on account of the jerking of the paralyzed limbs it had to be discontinued, after which there was improvement in this respect, but the reflex action was very marked till death, in fact, for a few moments after respiration and the heart beat had ceased. Notwithstanding the paralysis of the voluntary muscles of the limbs, the bladder and bowels gave almost no trouble. A catheter was at no time necessary and an injection was sufficient to secure a free movement of the bowels. Soon after the paralysis came on, the exposed points over the trochanter, and crest of the ilium, and sixth and seventh ribs of the right side developed bed sores in spite of our efforts to prevent them. The patient was now almost compelled to lie on his back, and for the last two months of his life he scarcely moved from that position. Between the paralysis and the pain that motion caused in the back of the neck, he had command of only the hands and the lower jaw. During the last three or four days of his life he was so weak in the hands that he could not hold knife nor fork, but it is hard to say whether it was paralysis or muscular weakness. For the last two weeks he had occasional attacks of dyspnea of varying periods of duration. Swallowing and expectoration became difficult and on the afternoon of Jan. 17, 1896 an attack of difficult breathing came on that continued to increase in severity till the time of death at 2:30 A.M., January 19. The mental faculties were retained till within ten minutes of death.

Post-mortem, January 20, thirty-two hours after death, was made in the presence of Dr. Stephenson, of Adrian, Dr. Rice, of Tipton, and Drs. Howell, Jenkins, Woodward, and the writer, of Tecumseh. The body was much emaciated but not to that extreme degree that is often seen in tuberculosis. With the exception of the bed sores mentioned above there was no disorder or discoloration of the skin. Palpation disclosed the fact that the sixth rib of the right side was broken, and that the clavicles were detached from the sternum. The body was turned over on the anterior surface and the spines of the cervical vertebræ examined by palpation and crepitation was plainly felt particularly in the upper ones. On dissection the spines and laminæ of the vertebræ were found in apparently healthy condition and when the posterior arachnoid cavity was opened it was free of pus. On carrying the dissection further forward pus poured out at the sides of the bodies of the fourth, fifth and sixth vertebræ. The pus was of thick consistency and creamy in appearance. The bodies of the fifth and sixth vertebræ were entirely consumed and the bodies of those above and below much eroded. According to the books at my command, trouble of this kind is almost always confined to the first three vertebræ, the body and odontoid process of the axis being especially vulnerable, and those below not often affected. In this case the atlas and axis were but slightly diseased, being ulcerated in small extent and the ulceration without discoverable connection with the large field of disease below. It was demonstrated that the abscesses extended downward on both sides of the bodies of the vertebræ into the thoracic cavity. The dissection explained why there was so little deformity in the spines of the cervical vertebræ discoverable before death, there being no perceptible lateral displacement. As the case occurred some eight miles in

the country and as all the physicians present are busy men the dissection was not as thorough as could have been desired, and the question of the "pinching" of the cord was not positively demonstrated, but from the inspection that it was possible to make and from the slight or imperceptible distortion of the vertebræ, it may be set down as almost certain that the cord was not compressed by bone. The body was next turned on the back and the swellings above mentioned investigated. They were found to be abscesses, connected with carious bone, more than half the contents being cheesy. The manubrium was entirely destroyed and the sixth rib was carious. The thorax was opened and its contents examined. With the exception of a few frail pleuritic adhesions the left lung was found normal. The right lung was attached by strong adhesions of the pleura to the entire inside of the right thorax. The lung tissue was healthy as far as could be determined. On each side of the upper dorsal vertebræ the abscesses of the neck bulged into the thorax but nowhere communicated with the pleural cavity. It was positively demonstrated that the abscess at the head of the sternum did not communicate with the abscesses of the cervical vertebræ, as the hand was passed freely up through the thorax between the two without difficulty and without disturbing either of the cavities or finding pus. The abscess of the sixth rib was also isolated.

In this case the use of the hypodermic and grooved needles for the detection of pus was worse than useless for they were misleading. I have no doubt but that at the time they were used the contents of the cavities were mostly cheesy and it was as well or better for the patient for them to remain unopened, but when they were used it was facts that we wished them to reveal, and they deceived us. The trouble unquestionably came from the injury, and it is now apparent that the patient should have been put to bed and kept quiet till the injured bones had time to unite, but it is perfectly certain that no man is sufficiently skillful in diagnosis to detect, or has sufficient authority to adopt, that treatment in such a case. As soon as the writer had made his diagnosis he gave positive orders that the patient should not to be allowed to assume the vertical position under any circumstances, and in consequence he never had another "stitch" in the back of the neck. Further than this all treatment adopted was, at most, of but temporary benefit. The patient did not die of compression of the cord by the bony structures around it, but from the exhausting effect of the long continued pyemia and the pressure of the abscesses upon the cord. That the long continued fever and rapid pulse were due to pyemia can hardly be doubted, for the pressure on the cord was below the heat centers, but it is strange that he never had a chill, and had so little variation in temperature, the latter remaining practically the same to the day of his death. It is probable that the injury to the side was responsible for the pleurisy and that the first abscess to form was in the back of the neck and that the others were metastatic in character. The case is offered for publication that physicians may find in it a possible guide to the diagnosis of a similarly difficult case.

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**Women in Professional Life.**—Professor Bergmann says: "I consider women absolutely unadapted to study for or practice the professions to which the universities now offer them access. This incapacity I consider is due to their physical conformation as well as to their moral constitution."

## TRANSPORTATION OF INJURED EMPLOYES.

BY FRANK H. CALDWELL,

CHIEF SURGEON OF THE PLANT SYSTEM.

SANFORD, FLA.

The preliminary treatment given the employe or passenger at the time of accident, resulting in injury, and before the patient is removed to his home or to the hospital, is a service of vital importance; but the scope of this paper will not permit its discussion. The writer intends to confine himself strictly to the subject, as outlined for him by your committee.

Considering the importance of transportation of persons injured it would be natural to suppose that there exists some literature on the subject, but a careful search has failed to reveal any material which could be utilized. The writer is forced, therefore, to give you his experience, trusting that in the discussion of his brief paper, new and valuable ideas will be brought out, which will prove of benefit to those unfortunates, who are often compelled to travel long distances while suffering intense agony from injuries.

It has been conclusively demonstrated that injured persons, except when suffering from severe and extensive injuries to the head, spine, thoracic and abdominal cavities or in a state of profound shock, may, when properly handled, be transported almost an indefinite distance without endangering life or increasing the extent of injury. And it has been further shown by actual experience that a large percentage of the exceptional injuries above mentioned can be safely handled if proper transportation facilities are provided. In cases of lighter forms of injury, as a crushed limb, how should they be transported to the hospital in order that shock may not be induced or increased, or the already mangled parts be further injured?

The nearest surgeon is sent for, and under no circumstances should the patient be carried to him. The messenger informs the surgeon as nearly as possible of the nature and extent of the injury, so that he may come prepared, for not all surgeons have emergency cases, ready for every kind of accident. The surgeon, upon his arrival, controls hemorrhage, anticipates or combats existing shock, and adjusts a temporary dressing. Briefly, he prepares the patient for his journey, whether it be long or short. After due preparation, the patient is lifted gently a few inches from the ground or floor, and a stretcher slipped under him, and he is lowered into it and made comfortable. He is then carried into a coach or baggage car of the first passenger train going in the desired direction. An injured man should never be transported by a freight train. If no passenger train is available in a reasonable time, a "special" should be provided. If the surgeon in attendance fears for the safety of his patient, the chief surgeon should be notified of the fact, and he should instruct the surgeons along the line to visit the patient as the train passes their stations and render any assistance necessary.

As a rule, upon arrival at the hospital, you will find your patient in condition to submit to any operation required for his relief. The plan above outlined in this class of cases, is the one practiced on the system which the writer represents and furnishes the patient almost constant attention from the receipt of injury until he arrives at the hospital; the greatest distance

between surgeons being forty miles, and usually but twenty.

The comfort and safety of the patient will depend very much upon the stretcher used in transportating him. The writer spent several years experimenting before one was secured which answered the purpose to the satisfaction of himself and patients. Photographs of the ones that have been in use upon our system for the past eight years are submitted for your inspection. It is made of cypress; a light, springy, yet strong, native wood. The stretcher will pass easily through a car door, and two standard car cushions placed end to end, fit it exactly, and can be used as additional protection when required. The bottom of the stretcher is of wire netting, two-inch mesh, and is covered with eight-ounce duck. The netting and duck are fastened to the frame with strips of wood which are screwed on, enabling us to easily clean or repair the wire and duck. The legs fold under, and have heavy, corrugated rubber tips. This stretcher is light, strong, durable, and easily kept clean. It has sufficient elasticity to prevent undue jolting, but not enough to give pain. The

Internal view of Plant System Hospital Car "H."

writer has personally tested it, and can certify to its comfort.

What shall be done with those cases of extensive injury, accompanied by profound shock?

When the surgeon is given sufficient authority, these cases may receive the proper "first aid to the injured" at almost any point on the line of road, for all employes should be instructed that in case of accident, the surgeon's authority is practically unlimited, and that they must obey all orders given by him. By having the coöperation of employes generally, the surgeon is enabled to isolate his patient and give him perfect quiet and rest.

The patient should be allowed to remain at the place where the accident has occurred until the arrival of the ambulance or relief car, in which he is placed and transported to the hospital, either by a "special" or by the first passenger train, as may be considered best.

There have been several plans of ambulance cars proposed from time to time, but they have, in the writer's opinion, been too elaborate, entailing a large expense upon the company, the officials of which could not see a proportionate benefit; and in my judgment they have taken the correct view of the case. What we need is a strong, stiff car with first-class trucks, furnished in the simplest style, without upholstery of any kind. We need a transportation room, an operating room, and a small consultation room.

A photograph of car "H" of the Plant System is handed you for inspection. This car was a second-hand express, remodeled and refitted according to the writer's suggestions. The total value of the car, as completed, is about three thousand dollars. The doors in each end are hung on the wrong side, so to speak, so that in opening they act as a screen, preventing undue draft upon the occupant of the car; this was done at the suggestion of President Plant.

Now, as to furnishings. The transportation room is furnished with wrought iron beds, with woven wire springs. Heavy, corrugated rubber tips are on the legs, which prevents slipping, and breaks the jar to a great extent. When not in use, these beds are fastened against the walls of the car, and are entirely out of the way. In addition to these, we have an air bed, which when not in use, is folded into a very small compass, and packed into a closet. It takes but a moment to inflate it with air. Lastly, there is a hammock arrangement made to suspend from the roof of the car by strong straps. This hammock has a

External view of Plant System Hospital Car "H."

device of short, strong spiral springs, which absolutely prevents any jolt or jar being communicated to the patient.

The operating room is supplied with an iron, glass-top table, and all necessary appliances for the treatment of shock, and for the performance of perfectly aseptic operations. Sterilizers, etc., are stored beneath the water tank, which is kept filled with sterilized water. All bedding, etc., are packed in the corner cupboard. Bandages, bottles containing chloroform, ether, etc., are in the center cupboard. The rest of the furnishings may be seen in the photographs.

The sitting room is intended only for a place of consultation.

The car is painted with a specially prepared paint, which may be scalded without injury, and will stand disinfection by means of super-heated steam or air.

There should be a relief car of some design for every two hundred miles of road, the car being stationed in the center, having a one-hundred mile run each way.

Gentlemen, it is my opinion that there are few

cases of injury that would not bear transportation if handled as outlined above. If you have cases that you are satisfied will not stand transportation even in the car, you have at your command comfortable quarters for them, and if necessary, you are prepared to perform any operation that may be needed, and remove them to the hospital at a subsequent time.

## THE PATHOLOGY, ETIOLOGY AND TREATMENT OF PETIT MAL AND GRAND MAL.

BY FREDERICK HORNER, M.D.
P. A. SURGEON [RETIRED] U. S. NAVY.
MARSHALL, VA.

Both of these forms of epilepsy belong with tetanus and hydrophobia to diseases of the nervous system, petit mal, the congenital or mild form occurring in childhood, grand mal, the inherited and acquired, the result of traumatism and developed during some period of adult life. Both present the characteristic features of the malady, viz., irregular action of muscles usually obedient to volition, curtly defined by Cullen, "*musculorum convulsio cum sopore.*" According to the theory of Dr. Carpenter, "Principles of Human Physiology," "the sensory ganglia are the primary seat of that combination of sensibility with spasmodic movements which constitutes epilepsy." The cerebrum also is implicated as occurs by the loss of consciousness preceded by confusion of intellect, impairment of memory and loss of will power over the mental faculties, followed by convulsions and maniacal excitement. There is a marked periodicity, this author adds, in the recurrence of the symptoms. Dr. Todd, "Lumlian lectures," considers there is malnutrition of certain parts of the encephalon which increases the disturbance, and this, when it has attained a certain measure of intensity, manifests itself in the epileptic paroxysms, just as a Leyden jar gets rid of its excess of electricity by a disruptive discharge, presenting like phenomena as when a current of the magneto-electric machine is transmitted through the region of the *corpora quadrigemina*, all the muscles of the limbs, the trunk and eyes will contract and be affected just as in a case of epilepsy. The epileptic by heredity may be considered to be born diseased and even condemned in advance to suffer from the effects. He has an epileptic brain and when the period for development and causes exist epileptic convulsions will inevitably follow. Hence intermarriage with an epileptic should be discouraged, since, as Dr. Brewster, of Baltimore, wisely asserts that "the predisposition in some families is such that any mental or moral strain or any great physical depression is liable to prove the exciting cause of the nervous disorder which is productive of epilepsy." The law of heredity applies to the children of inebriates, adding also to the epileptic list. In the *Quarterly Journal of Inebriety* are noted twelve families of drunkards: during a period of twelve years, there were fifty-seven children born, five of whom became epileptics, two of the epileptics became by inheritance drunkards. Dr. Blackford, Superintendent of the Virginia State Asylum for the Insane, at Staunton, in his late Report for 1894-95, says that in this institution there are 100 epileptics, a class regarded as a *bete noir* on account of homicidal impulses. It is noted as a melancholy fact that this class of unfortunates is increasing in Virginia, and the number in the United States is now 120,000; statistics show an increase annually along with other forms of mental disease in this and other countries. For example, a writer in the London *Humanitarian*, quoting the report of the registrar general, proves from the statistics, based upon 225,000 cases of certain forms of neuroses, inclusive of epilepsy, that such diseases of the nervous system occupy the fourth rank of maladies most destructive of human life. The report, also, of the commissioners of lunacy, in England, shows that, in 1859, there were of all classes of insane, inclusive of epileptics, 36,762, which number, the London *Lancet* adds, has increased to 74,842, the figures showing, after due allowance for increase of population, 52 per cent. increase above what it was twenty-three years previously. According to the annual report of the Surgeon-General, epilepsy is rare in the navy, in the ratio of 6 per cent., in the class of diseases of the nervous system, a fact readily explained, as seamen are usually rigidly examined before they are admitted to the public service. During a cruise of the U. S. S. *Jamestown*, the writer, as one of the medical officers of the ship can only recall a single case of grand mal occurring in the person of a seaman. As an object lesson and accurate synopsis of this man's symptoms, we quote the details of an identical case as presented in the Bible, for the cure of the Savior, and thus described: "Master, I have brought unto thee my son, which hath a dumb spirit, and wheresoever he taketh him, he teareth him, and he foameth and gnasheth with his teeth and pineth away; and when he saw him straightway the spirit tare him and he fell on the ground and wallowed foaming. When the Great Physician healed the man he lay as one dead." No enlightened physician would hesitate to pronounce such a case to be epilepsy—which the famous Dr. Maudsley of London, has explained to have been aggravated in the case cited by Satanic power, but now is only partially felt by mankind.

Dr. S. E. Smith, Medical Superintendent of the Eastern Hospital for the Insane, Richmond, Ind., says in the *Southern Medical Record*, "Marriages of expediency favor the development of constitutional nervous defects, and if conception has occurred after epileptic convulsions have appeared we may with a reasonable degree of certainty depend upon the reproduction of the disease in the offspring." The habits of modern society also contribute to add to the list of epileptics, too often premature marriages are entered into in the midst of social life, especially in densely crowded cities, where late hours at balls and theaters prevail, and the votary fails to obtain needful rest and sleep and the appetites and passions are under perpetual tension, and when marriage is consummated delicate females, with their husbands, start off on long and exciting journeys, often causing anxiety and nervous disturbance, in the midst of which occurs conception, gestation and, it may be, the birth of offspring inheriting every phase of the neuroses, among which a sudden fright of the mother, renal disease or sexual excess of the marital act, there is developed epilepsy, the latter occuring, as sometimes, after a miscarriage.

The treatment of epilepsy is preventive, medical and surgical. Petit mal, when occurring in early childhood or preceding the period of puberty, if judiciously treated at home by a physician and cared for by intelligent parents, or the trained nurse, may be relieved and even cured. Such examples are referred to by Dr. P. L. Murphy, Superintendent of

the North Carolina Hospital, in the *North Carolina Medical Journal*. They should receive home care, or treatment outside of an institution, thereby escaping the stigma usually attached to a person who has been the inmate of an asylum. Among the first cases presented for treatment the writer recalls, was a robust, country male child; the mother was nervous and hysteric. Between the period of childhood and youth, symptoms of petit mal were developed. Bromids were prescribed; the cold bath; massage and shampooing and the free administration of nourishment, and feeding with milk, especially malted milk prepared by Horlick's Food Co., the more preferable, because to the gluten of wheat and malted barley are added 50 per cent. of pure rich milk, sterilized, all administered with the hope that a more healthy brain might be built up, on the one hand, and a more regular habit induced. This patient was entirely cured of epileptic spasms, though of him might have been answered the Scriptural query already quoted, "How long is it ago since this came unto him?" with the answer, "Of a child."

The treatment of a second case of petit mal may be cited as a warning to physicians and to others who fail to apprehend the importance to protect and guard the epileptic subject during a recurrence of the disease when apparently cured and in the enjoyment of a vigorous and useful manhood. The patient was a young man, aged 28, a farmer. His father was, at an early age, stricken with almost total blindness and loss of hearing, and the mother was of the nervous temperament. While on shore duty, he became my patient, with symptoms of asthma, neurasthenia and dyspnea. He was a man fully developed in height, six feet two inches, weight 140 pounds. The thought was never suggested to question him or his friends concerning his health during the period of youth; far less was there any suspicion that he was an epileptic. When he recovered, unluckily, along with his companions, in the effort to swim and dive in the deep and cold waters of a swiftly flowing river, he was seen to sink suddenly. Though an expert swimmer, he made no effort to rise, and when his body was rescued and carried to land life was extinct. After patient inquiry, I learned from a servant of the family that once while the patient was wood-chopping with him, he suddenly fell upon the ground in an unconscious condition, was speechless for a while, and finally opened his eyes with a dazed look and again began his work. The fatal dive, ten years after the above experience of a paroxysm of petit mal, and which ended his life was inductive of capillary congestion of the cerebral and pulmonary vessels, nervous shock and unconsciousness. Such a case of epilepsy, however mild, ought never to be left beyond the watchful ken of the family physician, since no class of unfortunates are more neglected than epileptics, though a large proportion partially recover and may lead useful lives. Dr. Yarrows, an eminent alienist, has rightly asserted: "Few popular errors prevail and are more prejudicial to the interests of humanity, than that epilepsy and allied disorders are incurable, since a large proportion recover." (London *Lancet*, No. 10, Vol. II.) In a case of traumatic epilepsy, after a fall of twenty feet from the flooring above, the boy landed on the lower deck, suffered no fracture, but was for hours dazed by schock and concussion of the brain and subsequent clonic spasms and epilepsy of heredity origin. He made a good recovery.

The most successful treatment of the epileptic on a colony farm is likely to prove another grand triumph of medical science, to be consummated fully before the close of the nineteenth century. St. Clement's Hospital for epileptics, in Philadelphia, will shortly establish a colony farm, principally to provide outdoor work for such patients, being the first hospital and colony farm undertaken in America for the sole care of this neglected class. Ohio, New York and Maryland have formed colony farms, and Virginia and other States give evidence that they have a like purpose to make such provision for those afflicted with the "falling sickness," and thereby confer a great boon on the sufferer's family, and often relieving the fears of an entire community. Dr. Drewry, Superintendent of the Central State Hospital, Petersburg, Va., has vigorously prosecuted this enterprise in Virginia. The naval medical authorities fortunately have ample accommodation for the few epileptics of this arm of the public service at the various naval hospitals at home and abroad, though we have known of cases of the kind being sent to the Government Hospital for the Insane for treatment.

## SOCIETY PROCEEDINGS.

### Chicago Pathological Society.

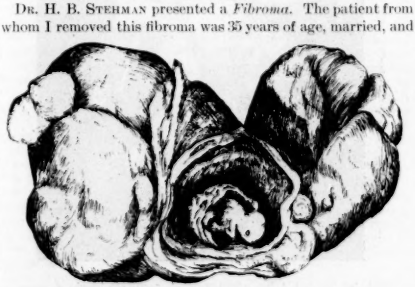
*Regular Meeting, Dec. 9, 1895.*

DR. WELLER VAN HOOK, President, in the Chair.

DR. J. B. MURPHY read a paper entitled: "Fibromyoma Complicating Pregnancy; Fibroma of Vaginal Wall." (See page 406.)

PRESENTATION OF SPECIMENS AND DISCUSSIONS.

DR. H. B. STEHMAN presented a *Fibroma*. The patient from whom I removed this fibroma was 35 years of age, married, and



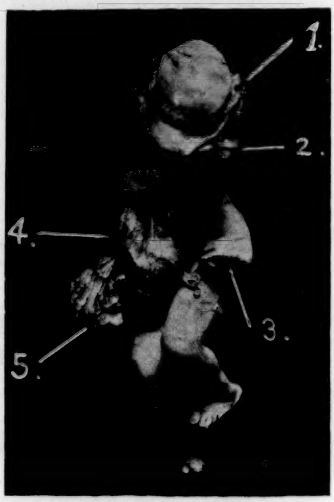
Pregnant uterus with contents, and fibromata.

had never been pregnant before. While she had been aware of the existence of the tumor, previous to within two months she had experienced no discomfort from its presence, and it is doubtful whether she would have sought medical advice except for the fact that her condition was rather to her discredit. Her family physician was somewhat in doubt as to the pregnancy, but the suppression of menstruation, morning sickness, changes in the mammary glands and the appearance of the cervix, added to the rapid growth of the tumor with the attendant pelvic discomfort, left no doubt in the matter. She was told that her choice lay between a miscarriage or hysterectomy, and taking into consideration the size of the tumor, was informed that the risk of the latter was no greater than the former, and probably a little less. At her request the tumor was removed, amputating at the cervix and bringing the stump, previously attached to the peritoneum, into the lower angle of the wound. The operation was done in August, 1893; the convalescence was uneventful, the patient returning home

at the end of five weeks. This growth had developed from the fundus of the uterus in such a manner as to completely hide it from view, but the sketch shows the lobes of tumor separated with the uterus incised antero-posteriorly upon its anterior surface, exhibiting the fetus in utero.

DR. W. T. ECKLEY presented: 1. *Anencephalic monster*, removed post-mortem from an ectopic pregnancy of eight months. The fetus presented the usual appearances of this variety of monster. At the autopsy the inferior mesenteric artery of the mother was of unusual size. 2. *Craniorhachischisis*. The fetus had but six dorsal vertebræ. There were two thumbs on one of the hands.

DR. A. J. OCHSNER presented a *fetus*, showing the effects of an extensive amnionitis. The specimen which I show you is interesting in that it shows in various parts the effects of abnormal pressure upon the fetus. The lower extremities show the effects of this pressure the least. The hand and arm on the left side show the effects of pressure to quite a marked extent. As you see, the hand is clubbed, and there is probably an absence of the lower end of the radius as a result of pressing we had made a diagnosis, we were not absolutely positive about it. Another reason was that the fetal heart sounds were not sufficiently strong to warrant the necessary danger to the mother. The probabilities of obtaining a living child by an abdominal section were not sufficiently strong to influence us to expose the mother to the danger that would be necessary to deliver the child at term by this method; consequently we waited for six weeks. The child died two days after the labor pains began; at least no further motion was felt, and the fetal heart could not be heard after this time. At the end of six weeks we removed the child by abdominal section. The placenta was left in place, the sac attached to the abdominal wall, and the cavity from which the child was removed was packed with gauze in the torm of a Mikulicz drain. In the meantime the amniotic fluid had decreased to a very marked extent. At the end of three weeks the placenta was removed, after which the wound healed by granulation, having remained aseptic throughout. The patient returned to her home two months after the operation and carried about some sick children for two or three weeks, and as a consequence developed a ventral




Monster, extra-uterine pregnancy. 1, amniotic band; 2, superior maxilla; 3, clubbed hand; 4, liver; 5, colon.

Monster, extra-uterine pregnancy. 1, amputation at shoulder; 2, liver; 3, colon.

sure. Upon the right side the arm is entirely missing. The colon and the liver project from the unclosed abdominal cavity, from which a portion has been removed also by pressure. There is no arm upon the left side, it having been amputated probably in the same manner. The nose and forehead are deformed. I do not know what to call this deformity; there is a band extending upward from the mouth elevating the upper lip. The left eye is almost entirely closed, and there is a considerable amount of fibrous tissue extending along the cicatricial band. As to the history of this case I will only give it to you briefly. The patient was a laboring woman, 40 years of age, who had formerly borne several children. She came to the hospital in labor, so to speak; that is, she had labor pains. An examination showed that the uterus was probably empty. A diagnosis of extra-uterine pregnancy at term was made and confirmed by various practitioners, among them Dr. John Bartlett. It was decided not to attempt to deliver the child by abdominal section, one reason being this, that notwithstand-

hernia, which gave us an opportunity to make an accurate diagnosis concerning the location of the fetus. During the first operation we supposed the fetus was in the broad ligament, and that the placenta was attached in the direction of the uterus. However, in the secondary operation it was an easy matter to determine the location of the extra-uterine pregnancy, because the ventral hernia had attached to it what was left of the sac which had contained the fetus. It consisted of the broad ligament which was spread out at one end. At the upper end to the right the ovary was located; consequently we then made a positive diagnosis that the fetus had lain in the broad ligament. I will say regarding the history of the mother that at about the third month she began to have repeated hemorrhages which continued for some eight weeks, confirming our diagnosis of extra-uterine pregnancy. Six weeks after the second operation the mother again become normally pregnant.

DR. JOSEPH HAVEN presented *a kynocephalous monster*. I

do not present this little monster for the purpose of opening the old controversy as to the possibility of maternal impressions being imparted to the fetus in utero, as it would lead to a great deal of discussion, but because this little freak of nature is interesting. I will briefly give the history of the case, and ask you to compare the two specimens before you. Some twelve or fourteen years ago I was in attendance upon a family in this city, one of whose members was a little girl 8 or 10 years old, extremely nervous and high strung, who possessed an uncontrolable fear of dogs. Anything in the canine race, even the picture of a dog, would distress her. Her mother explaining the matter to me said that while carrying the child in utero she had been frightened by a dog, and that the girl had inherited that fear. As the child grew older she did not outgrow that tendency. During an attack of typhoid fever, in her delirium she had frequent visions of dogs, so that it was often necessary to employ narcotics to quiet her. The child grew up and was married, shortly after which she became pregnant. About the sixth week of pregnancy I was sent for one afternoon in a hurry. I found Mrs. D. hysterically excited. I was told that in going out of the yard a neighbor's dog jumped upon her and terribly frightened her. She was put to bed, began to flow, and a miscarriage seemed imminent. But she was tided over. I saw her daily after that for some time. She assured me that her child would be marked like a dog. I tried to disabuse her mind of this idea. Time went on and about the third month the same dog jumped on her again and bit her in the foot, inflicting a slight lacerated wound. It was some time before I could go to the case and when I reached the house a miscarriage had just taken place. I took possession of the fetus, being careful that the mother should not see it. On

Kynocephalous monster with skull of dog.

account of the peculiarity of the specimen removed I secured the dog that had been the occasion of so much trouble, and to-night I show you the skull of the dog which I would like to have you compare with the little monster.[1] Those who believe in the transmission of maternal impressions will get some consolation from examining these specimens, and those who believe such results happen as mere coincidences will have to account for this freak as best they can.

Dr. Jos. B. De Lee (by invitation) presented a *hyyoplasic monster*. The specimen which I shall present to-night is a rather rare one. It belongs to that class of monsters that are described as hypoplasias, and the hypoplasia in this case occurred at an early stage of development. The fetus is well developed. You see only the upper half, but the lower half was perfectly normal. The technical name for the deformity which you see is cyclops, or synophthalmus, or another name for it is arrhinencephalus. The deformity is produced by an arrest in growth of the three anterior cerebral vesicles of the brain. The interior of this skull, if I had permission to dissect it, would show a large cyst which would represent the cerebrum, and at the base would be the cerebellum normally developed. Anteriorly there has been no distinction between the eye vesicles. They did not separate, and therefore form the eye in the median line. This monster shows a well developed single eye. Owing to non-development of the cerebral vesicles flexion was not complete, so the nose, or the representative of it, is this process which you see above the eye. It is a beautiful specimen in that it shows one single eye which is complete.

The other specimens which have been presented by the members were interesting in several respects, and they belong also to the class called hypoplasia. One of them was a hypoplasia, the result of pressure from amniotic bands. The extra-uterine pregnancy cases are particularly liable to present amnionitis. This amnionitis has been disputed by several authorities who claim that a normal amnion can, in the absence of the liquor amnii, at an early period become attached to part of the young fetus and thus interfere with its development. Abdominal hernia is sometimes ascribable to the same cause. The non-development of the forearm in this fetus presented by Dr. Ochsner is an interesting feature ascribable also to amniotic bands. It is an anencephalus, and the specimen by Dr. Eckley was a similar one. The other was a specimen of craniorachischisis, a common deformity. None of the gentlemen have given us any points about the clinical history or course of monsters. Possibly that was because we have here no monsters that would cause obstruction in labor. A diagnosis of double monster before labor is impossible. No one has yet diagnosticated a double monster before labor, and the nearest any one has come to it was to diagnose twins. A diagnosis of single monster has been made several times. In a case like the one reported by Dr. Eckley, the absence of the brain could have been diagnosed from the abdominal findings. Another anomaly that occurs in single monsters that is probably more common is hydrocephalus. That could be diagnosed. The double monsters that cause trouble do so in three ways. First, those monsters that have a reduplication of the upper half of the body, with two faces attached to one body. These are called diprosopus, or double-faced monster. These monsters cause a disturbance in labor by the marked increase in the circumference of the part. The other form of monster of this class which will cause trouble in labor is the one in which there is an increase in the lower half of the body, where there will be two individuals joined together below. This is called dipygus, and there may be three or four legs. Another form of monster for our study clinically is that in which there are two individuals adherent at the head or breech. One is called craniopagus and the other ischiopagus, or the pygopagus. Some three years ago there was an ischiopagus monster shown in the museum here in which two children, then 16 months old, were attached to each other by the buttocks. Such a case would cause little difficulty in labor, needing possibly a little traction. Thirdly, a most interesting monster is that like the Siamese twins, with two children joined together at the breast, or thoracopagus. Since this junction is very movable, anomalies can occur in which one fetus will be half delivered, and the other will apply itself transversely across the inlet. The case resembles one of interlocked twins and may cause the severest kinds of dystocia.

In the treatment of these three kinds of monsters the method to be pursued will be plain. In the first group, forceps or version and extraction, or if a dipygus extraction by all the feet that present. In the second group, traction on the body of the fetus delivered. In the third group, version of the second twin, then bring the first out, finally deliver the second by the breech. As a general rule breech presentations are more favorable in labor in monsters, and one should seek to turn, if the opportunity presents.

Dr. Gustav Fütterer discussed: *1. Metastasis of carcinoma from the labia majora.* "You know that generally carcinoma of the labia majora by metastasis make their appearance in the inguinal glands. In this case the carcinoma of the right labia was removed very early, and some time after that the patient died. I made a post-mortem examination and found a nodule in the myocardium. I examined the cells and found that they were like the cells of the upper layers of the skin containing eleidin. Perforation into the pericardial sac had taken place and from here an absorption of the cells by the stigmata of the pericardium was effected. You see the epithelial cells mostly in columns. Most of them at right angles to the surface of the pericardium, some parallel to it, all filling out the lymphatic spaces. Fresh specimens of these parts show that the cells had retained their original character entirely. As far as I know, this is the only case of its kind that has been observed or reported. It may be there are more, but I do not know of any where such a metastasis has occurred from such a superficial carcinoma of the labia majora."

*2. Histogenesis of giant cells, illustrated in a carcinoma of the cervix uteri.*—"You wonder, doubtless, why I show you this because you see such cases so frequently. The reason why I do so is this, that there are large cells which contain comparatively large nuclei and I consider this important as an his-

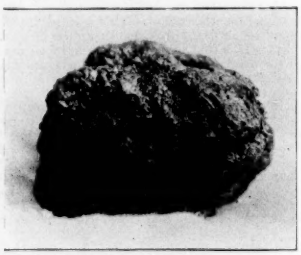
[1] The general appearances are well shown in the photograph which is reproduced here. The peculiarities not brought out by the photograph are, the extreme breadth of the shoulders, the great chest development and the caudal appendage. The tail was originally three quarters of an inch in length, but has suffered from much handling. The sulcus around the neck was occasioned by the cord originally used to suspend the specimen in the jar.

tologic fact. If you will look at the first specimen you will notice that there is extensive necrobiosis in most of the alveoli of the carcinoma. You will also notice (with low power) that in the necrobiotic parts there are large red spots, and as there has been employed an elective staining for nuclei, you must recognize that these spots are large nuclei. The second specimen, with the high power, shows that these red bodies are nuclei. What does that mean? The necrobiosis shows that there is a lack of nutrition. With lack of nutrition we have lack of water, and according to the experiments made and published by Prof. Jacques Loeb, of the Chicago University, in 1892, such a deficiency of water brings about, first a rigidity of the protoplasm—while the nuclei may multiply—and then, when increased, a rigidity of the nucleolar substances, which will prevent their division. In this case, I would say, there was a local drought, as it were, sufficient to cause a rigidity of the protoplasm, preventing its division, sufficient also, to prevent the division of the nucleoli, but not sufficient to prevent the increase in the bulk of the latter's substance. However that may be, our findings in the specimens which I show to you, and our observations on giant cells in tuberculosis confirm the results of Loeb's investigations and I believe that the latter will bring to us the long-sought-for clew as to the histogenesis of the giant cells. An excessive high or low temperature, or a lack of oxygen (vacuum), will cause the same rigidity of the protoplasm and nuclei successively and, in dealing with those matters, we must always remember, that protoplasm is also present in the nucleus. The latter fact explains the similarity of reaction of the nucleus, and the protoplasm, which only shows a qualitative difference between either."

DR. J. B. MURPHY read a paper on

INTESTINAL OBSTRUCTION FROM ENTEROLITH.

J. McC., aged 47; male; admitted to Cook County Hospital Dec. 1, 1895. Family history negative; used intoxicants and



Enterolith.

tobacco to excess. Had had gonorrhea three times. Denies syphilis. Suffered from typhoid fever when a boy. About twenty years ago was seized with sudden pain in the epigastrium. He described the pain as a cramp; says it lasted but a few hours; since that time has had many similar attacks, each resembling the present one. Present illness began five days ago. After a large bowel movement, was attacked with severe, steady, aching pain in the epigastrium. This compelled him to go to bed. The following evening he began to vomit a dark-colored material. After a few hours, the odor of the material ejected became offensive. It was impossible to produce a bowel movement. The severe pain, vomiting and inability to produce a bowel movement has continued up to the present time.

Physical examination: Patient well nourished; conjunctiva slightly jaundiced; tongue dry and heavily coated; breath very offensive; face has a pinched expression; knees drawn up. Abdomen distended; irregular elevations can be noticed in its surface; liver dullness normal. Peristalsis movement could be recognized through the abdominal wall. Auscultations revealed strong peristaltic action, most marked in the right epigastrium. No tenderness except to the left and a little above the umbilicus, where deep pressure produced pain. Pulse 90; temperature normal.

Diagnosis: Mechanic ileus without intestinal strangulation.

Celiotomy was performed Dec. 6, 1895, assisted by Drs. Beasley and Wood. Median incision. Small intestine very much distended, a coil secured and held by an assistant. Splenic flexure of colon located; found contracted and empty; advanced along the transverse colon until near the median line, where a nodule was felt in the small intestine. This nodule was drawn into the wound. The intestine about the nodule was about two inches in diameter, and below, five-eighths of an inch. It could readily be seen that the obstruction was produced by a large foreign body in the bowel. Parallel incision was made in the bowel, and the enterolith extracted. Opening closed with Czerny-Lembert suture. Abdominal wound closed with silk wormgut suture. No drain. The enterolith weighed twenty-five grams. It measured 4.5 c. longest diameter, and 2.75 c. shortest diameter. Its circumference was 12 c. The center appeared to be composed of an old dry mass of plum-pudding, to which other material had become adherent. It would be interesting to know whether this had been the cause of pain for twenty years preceding the operation, and if it had been in the canal that length of time where it was lodged. We do know that large foreign bodies may remain in the bowel for months without producing manifestations of their presence. The differential diagnosis between strangulated ileus and obturation ileus in this case, was based on the fact that the man had suffered for five days from obstruction and still was not collapsed nor depressed, which he would have been, had the intestine been strangulated. The patient made an uninterrupted recovery.

## Chicago Ophthalmological and Otological Society.

*Regular Meeting, Dec. 10, 1895.*

DR. F. C. HOTZ in the chair.

There were twenty-three members and visitors in attendance. The minutes of the last meeting were read and approved. The Secretary read the applications of Drs. S. L. McCreight and T. A. Woodruff, Chicago, and Dr. H. V. Würdemann, of Milwaukee.

DR. WÜRDEMANN showed the society some asbestos floss which he had been using instead of absorbent cotton, the advantage being that it can be held directly in a flame and sterilized in that way. It is very soft and more absorbent than absorbent cotton. He also showed asbestos cord which can be used for drainage, cloth of different thicknesses, and asbestos paper. It absorbs thick pus better than absorbent cotton, and is quite light even when wet.

DR. N. H. PIERCE then read a report of "Six Cases of Removal of the Ossicles for Different Causes." The report will be published.

DR. C. W. HAWLEY, some years ago, had seen several operations for sclerosing catarrh in which there was much tinnitus. The first case that he had seen was so very much improved by the operation, that he had very strongly recommended it to several patients subsequently. But in the next five cases that he saw the results were so disastrous that he had not recommended the operation for some time. In one case there was complete paralysis of the facial nerve lasting some time, and all of the five cases were not only not improved, but as a rule made worse.

DR. WÜRDEMANN had had considerable experience in doing this operation. He had had six cases of sclerosis and about thirty cases of chronic suppuration within seven years on which he had operated. The first six chronic purulent cases had a successful result. The next two cases were of the dry form. The first, a young girl, both ears were operated upon with a good result in both. At first, he had great difficulty in, and operated a number of times for, preventing the renewal of the drumhead. It grew very rapidly. At the end of a year the girl's hearing was worse than before the operation, but the tinnitus was better. In the second case, a woman of 36, the tinnitus was lessened, but the hearing grew worse. In another case, a man of 60, an Australian, all methods of treatment were tried without any result—in fact, he got worse under treatment. He was operated upon and made absolutely deaf. In three other cases the tinnitus was diminished, but the hearing not improved. In the suppurative cases about 60 per cent. were cured as far as suppuration was concerned; in 20 per cent the suppuration was not lessened, and in 20 per cent. it was somewhat lessened. Of all the suppurative cases, about one-third had the hearing improved by the operation. Dr. Würdemann has reached the point where he believes that he will not operate on any sclerosis case where the stapes is fixed; and as far as suppurative cases are concerned, the operation is justifiable only in those cases in which the suppuration comes from the attic as well as from the other parts of the middle ear. These cases usually have a necrosis of the incus or malleus; we most often find the incus diseased, when we find it at all, which is not very often, as it usually has escaped from the ear. We sometimes find the osseous canal very much roughened, and it is necessary to scrape this in order to effect

a cure of the suppuration. The point of the operation in attic suppuration is that by means of it free drainage is obtained, and the whole benefit to the case arises from this. He had done the Stäcke operation three times with immediately successful results. This operation may be considered the ideal one. A preliminary opening of the drumhead in the sclerosing form of inflammation is not apt to give any result, because these cases usually have free communication with the outer ear through the Eustachian tube, and nothing is gained by making an opening in the drumhead. This is especially the case where the drumhead is atrophic.

Dr. Dodd had recently operated upon two cases. One which he had followed for six weeks was a woman with exceedingly annoying and severe tinnitus. She could not sleep; she could not control herself because of the incessant and loud noise, and came to Dr. Dodd for that only. She had been treated for more than a year by different methods with no benefit; in fact, getting worse, and at the time he saw her the ear was perfectly deaf for conversation. He removed in this ear the drumhead and the malleus, the tinnitus was very much improved, and, strange to say, the hearing also. About two weeks after the operation suppuration started in the middle ear, due to some carelessness, but was easily controlled in three weeks. The amount of improvement both in the hearing and in the tinnitus in this case was very marked. Whether this continued or not, the doctor does not know. The other case was not nearly so severe a one, and the operation improved the hearing somewhat. The tinnitus had not been very severe and the patient paid but little attention to that part. It apparently was about the same.

Dr. Holinger had had fair results from the operation where the ossicles were necrosed. In the dry catarrh, where inflation improves the hearing, he considers the operation contra-indicated. In true sclerosis improvement can hardly be expected. Where the Rinne test is negative, no results can be expected from operation.

Dr. Pierce, in closing, said that he wished it understood that in all of his cases, except one, all other methods of treating the ears were tried before operation was resorted to. Although he knew that Dr. Sexton recommended the operation indiscriminately, he had seen several cases from Sexton's hands where certainly marked improvement had resulted. One case he remembered particularly, where a lady was operated on in her worst ear some five years ago, and now the worst ear is the better one, the ear unoperated upon being the worst at present, thus establishing the claim that Sexton makes, that the operation tends to check the process. The Stäcke operation is an ideal one, but many patients will not submit to it. He asked if any of the members had had any experience with Lucae's probe?

Dr. Gradle said that he had used the probe a little, not methodically as Lucae recommended, and had no results from it.

Dr. Würdemann had tried it in several cases, but without results in most of them. He did not consider, however, that he had given it a fair trial except in one case, the case of the man of 60 whom he had made stone deaf in one ear. He used Lucae's probe methodically, as recommended by Lucae, in the other ear, and had surprisingly good results.

Dr. Mann showed a modified stomach tube which he had used for carrying off the water in syringing the ear. The side of the funnel-shaped end had been cut away and this was attached under the patient's ear by means of cords passing around the head.

## SELECTIONS.

**The Fate of Micro-organisms in Inspired Air.**[1]—In a communication we recently had the honor of reading before the Royal Medical and Chirurgical Society[2] on "Microörganisms in the Healthy Nose," we calculated that 1,500 organisms are inhaled into the nose every hour. This was the lowest estimate, and we quoted experiments to show that it must be a common event—at least, in our average London atmosphere—for 14,000 organisms to pass into the nasal cavities during one hour's tranquil respiration. The fate of the thousands of microbes which thus enter the human body is a question of great pathologic interest, and this increases when it is remembered that the expired air is practically free from germs. A study of the subject should therefore be instructive in showing how the human economy deals with the hosts of organisms which are continually invading it through the air we are always breathing. The fact that inspired organisms do not, as a rule, reach the air cells was first pointed out by Lister. He observed that "in simple fracture of the ribs, if the lung be punctured by a fragment driven inward upon it, the blood effused into the pleural cavity from the wound in the highly vascular organ, though freely mixed with air which enters the pleura through the same orifice, undergoes no decomposition, as is clearly implied by the absence of any symptoms of pleurisy in such cases. The air is sometimes pumped into the pleural cavity in such abundance that, making its way through the wound in the pleura costalis, it inflates the cellular tissue of the whole body; yet this occasions no alarm to the surgeon, unless the openings in the parietal pleura become insufficient to permit free egress for the air, which then becomes pent up in the serous cavity and, distending it far beyond its natural dimensions, encroaches so seriously on the other lung as to embarrass or even abolish its functions." In a postmortem examination on such a case ten days after the receipt of the injury Lister found the enormously distended pleura free from effusion and perfectly smooth and healthy. This observation was explained by the atmosphere being filtered of germs by the air passages, "one of whose functions it is to arrest inhaled particles of dust and prevent them from entering the air cells.[3] Later Tyndall showed by his experiments with a ray of light in a dark chamber that expired air—or, more exactly, the last portion of an expiration—is optically pure, *i. e.*, that respiration has freed it from the particles of suspended matter with which it is laden.[4] In 1882 Gunning of Amsterdam showed that expired air contains no microbes capable of provoking putrefaction in sterile liquids through which it has been passed,[5] and in 1887 Strauss and Dubreuil independently arrived at a similar conclusion.[6] They spent thirty minutes in expiring from 200 to 300 liters of air into tubes, in the bottom of which was a layer of sterilized alkalin bouillon. The greater number of these tubes remained sterile; a few showed growths of microbes and molds, doubtless due to accidents of manipulation. Grancher has made many experiments with the expired air of phthisical patients and has never found in it the tubercle bacillus or its spores. Charrin, Karth, Cadéac and Mallet have made analogous experiments with negative results. In a further series of confirmatory experiments on this subject Strauss[7] showed that on an average of 809 bacteria and spores inhaled only one single germ is expired. Now, as the air is practically freed from all germs by the respiratory act, we have to consider where and how the thousands of organisms are arrested in the air passages. The experiments of Hildebrandt[8] would tend to prove that the air is entirely freed from all germs before reaching the trachea. In controlling this we have examined the mucus from the trachea of all animals recently killed in the laboratory, neglecting, of course, any that had suffered from affections of the respiratory tract. The opportunities are too few to be recorded numerically, but up to the present we have always found this mucus to be quite sterile. The above shows that the fate of microörganisms must be sought for principally in the upper air passages. We therefore commenced with the nasal fossæ, and our experiments are published in the paper already referred to.[9] The result we arrived at was that "the mucous membrane of the healthy nose only exceptionally shows any microörganisms whatsoever. The interior of the great majority of normal nasal cavities is perfectly aseptic. On the other hand, the vestibules of the nares, the vibrissæ lining them, and all crusts formed there are generally swarming with bacteria." These two facts seem to demonstrate that the vibrissæ act as a filter and that a large number of microbes meet their fate in the moist meshes of the hair

[1] A paper read in the Section of Pathology at the annual meeting of the British Medical Association held in London in August, 1896.

[2] See Transactions, Vol. LXXVIII, 1895.

[3] Brit. Med. Jour., July 18, 1868.

[4] Philosophical Transactions of the Royal Society, Vol. CLXVI, Part 1, 1876, p. 27.

[5] "Werden mit der Expirationsluft Bacterien aus dem Körper entführt?" Klinische Monatsblätter für Augenheilkunde, 1882.

[6] Sur l'Absence de Microbes dans l'Air expiré: Académie des Sciences, Séance du 5 Décembre, and La Semaine Médicale, 1887, No. 49, p. 493.

[7] Annales de l'Institut Pasteur, 1888, No. 4.

[8] Experimentelle Untersuchungen über das Eindringen pathogener Mikroorganismen von den Luftwegen und der Lunge aus. Beiträge zur pathologischen Anatomie und Physiologie, Ziegler und Nauwerck, Band II, 1888, p. 421.

[9] Microörganisms in the Healthy Nose, etc.

which fringes the vestibule. Not only does this arrangement arrest the ingress of germs, but others which have penetrated into the nose are rapidly ejected by the action of the ciliated epithelium.

To obtain an idea of how rapid a movement might be imparted by ciliary action we performed the following experiment. A frog was pithed and the lower jaw cut away, exposing the dorsal wall of the pharynx, which in this animal is covered with ciliated epithelium. On this a particle of wet cork was placed, and it was most striking to observe the rapidity with which it was conveyed along to the esophagus. We found that it traveled at the rate of 25 mm. (one inch) per minute. In the normal frog the rate is probably more rapid, as ciliated epithelium thus exposed is soon damaged. It is difficult to give an analogous demonstration, in the human subject, as a foreign body of any tangible size, even powdered magnesia, is apt to act as an irritant and produce a free secretion of watery mucus, which rapidly washes it down into the vibrissæ.

With regard to the microörganisms which may be deposited in the Schneiderian membrane, we carried out the following series of experiments on four different occasions. Cultivations were made from the vibrissæ and from the mucous lining of the nose of one of us who acted as the subject. The cultures from the vibrissæ invariably showed yellow and white colonies in abundance, while those from the mucous membrane were almost invariably quite sterile. This served to show that there was no red growth of the bacillus prodigiosus, the organism had been prepared, and a sterilized loopful was deposited on a distinct point on the septum, well within the vestibule. Cultivations made from the spot immediately, or within five minutes, showed an abundant confluent growth. When taken after fifteen minutes' interval the cultures on agar showed already a diminished growth. After thirty minutes the growth had markedly decreased; at the end of one hour it had diminished by 75 per cent. and consisted of a considerable number of discrete colonies; frequently no trace of the loopful of the bacillus prodigiosus could be detected after eighty minutes from the time it had been deposited, and after two hours had elapsed in no case did we get any growth whatever when cultivations were made from the spot inoculated. We would note that this observation had reference to a loopful of pure culture, large enough to be detected as a distinct red spot on the mucous membrane, and therefore containing myriads of organisms. What became of them all we are at present not prepared to say. During the two to three hours that the nose was kept under observation cultivations were continually being made from around the spot, but never once did they show any bacillus prodigiosus. We carefully examined the opposite wall of the nasal cavity and only once found a red growth among the vibrissæ. Wurtz and Lermoyez[10] hold that the nasal mucus itself exerts a bactericidal influence on all, or nearly all, the pathogenic agents. So far we have been unable to corroborate their researches; but this may be due to our want of success in obtaining an appreciable quantity of sterile mucus. To collect this secretion it is necessary to introduce a sterilized cotton-wool plug into the nasal cavity and leave it there for some time. We have found it practically impossible to do this without contaminating the tampon with the vibrissæ at the orifice. Now, as we have shown, these are never free from germs, and the nasal mucus with which they come in contact was in no case sufficiently germicidal to prevent their free growth when sown on gelatin plates. In some cases we left the nasal mucus in a sterilized glass for from one to sixteen hours at room temperature, during which period it had abundant time to exert its destructive action on the germs which had adhered to it when passing out along the vibrissæ. Nevertheless, there was always a free growth of yellow and white colonies when gelatin plate cultivations were made from it. Wurtz and Lermoyez have only published their researches on the action of nasal mucus upon the anthrax bacillus; but still they hold that the same germicidal effect is exerted in different degrees of intensity on other microbes.

Although we have been unable to obtain any proof of bactericidal qualities in nasal mucus, we have satisfied ourselves that it is possessed of the important property of exerting an inhibitory action on the growth of microörgansms. This is shown by what we have said above and by the following experiment. A loopful of a fluid culture of the bacillus prodigiosus was mixed with a small quantity of nasal mucus. From this gelatin plate cultivations were prepared, some immediately and others at various intervals up to thirty-six hours; on each occasion the same quantity of the mixture was used for inoculating the plates. The number of colonies of the bacillus prodigiosus which developed in various plates was practically identical, showing that no increase in the number of organisms had taken place, and also that no germicidal action had been exerted during even many hours' exposure to the mucus.

We have made a great number and variety of experiments in order to test the bacterial condition of the air before and after passing through the nose. For a long time the conflicting and contradictory results showed us that there was some error in our methods. These were based on the plan adopted by Bloch for testing the warming and moistening influence of the nose. Finally, and only lately, we succeeded in approximating closely to the normal condition of affairs by designing the following method. A sterilized glass cannula, shaped like the tube of a post-nasal syringe, was introduced into the post-nasal space of one of us. The end of this glass tubing, projecting through the mouth, was directly connected with a glass tube passing down through a rubber cork to the bottom of a large-sized test tube. Fifteen c.c. of liquified sterile nutrient gelatin had been poured into this tube, the bottom of which was narrowed so that quite an inch of the glass tubing passed below the surface of the liquid. Another piece of glass tubing passed up through the rubber cork and was connected with a mouth-piece, through which inspirations were made regularly by the other observer so as to imitate normal breathing. In this way the air passed freely along both nasal cavities of one observer, entered the glass tubing, and bubbled through the layer of gelatin. Ten respirations were thus taken and an Esmarch roll cultivation was made. In an analogous amount of laboratory air we found twenty-nine molds and nine bacterial colonies; whereas after passing through the nose the air contained only two molds and no bacteria. On another occasion we found in nine liters of laboratory air six molds and four bacterial colonies, while the same quantity of air after passing through the nose exhibited one mold and no bacteria. We see, therefore, that practically all, or nearly all, the microörganisms of the air are arrested before reaching the naso-pharynx; probably a majority are stopped by the vibrissæ at the very entrance of the nose and those which do penetrate as far as the mucous membrane are rapidly eliminated. The nasal mucus is an unsuitable soil for the growth of organisms, and hence is an important factor in that it does not further their multiplication. The removal of the intruding organisms from the Schneiderian membrane is probably in the main due to the action of the ciliated epithelium, assisted by the trickling of mucus and the lachrymal secretion. Phagocytosis may share in the work of removal, though to a small extent, for we have only once found phagocytic cells containing bacteria.—ST. CLAIR THOMSON, M.D. and R. T. HEWLETT, M.D., in *The Lancet* (London), January 11, 1896.

[10] Le Pouvoir Bactéricide du Mucus Nasal: Annales des Maladies d'Oreille, etc., 1896.

**Syphilis in Infants.**—Boulengier denies the possibility of transmitting syphilis to the offspring by means of the spermatozoid. He thinks that syphilis in conception is an embryologic impossibility, and that where children are born with it, the disease was acquired *in utero*. Syphilis may be latent in the mother, but it finds the placenta such a fine culture medium that it develops there and infects the offspring while sparing her. Although the actual syphilis is not transmitted by the father in conception, yet all the symptoms of degeneracy that it entails are liable to appear in the child, inherited directly from him. He cites many cases to support his theory, among others a couple with no venereal antecedents of any sort. The husband contracts the disease when his wife is in the fourth month of pregnancy. The child is born with pronounced syphilis. A month later, the mother who had until then shown no signs of infection, was attacked with roseolar and papular eruptions.—*Presse Médicale Belge*, November, 1895.

**Statistics of Anesthetics and Ruptures in Scandinavian Countries.**—By concerted actions of the surgeons of Sweden, Finland and Denmark, determined upon at the Surgical Congress of 1893, at Gothemburg, statistics have been collected on these two subjects and published in the *Nordiskt Med. Arkiv*, xxvii, Nos. 4 and 5. Full details are given from which we cull the following: The mortality in 15,052 cases of anesthetics employed is 0.10 per cent. with chloroform; 0.15 per cent. with ether, and 0.18 per cent. where both were used. Five cases of death in the course of the narcosis from chloroform make a ratio of one in 2,257 cases. Gurlt, of Berlin, reported one death in 1,924 cases with chloroform, and one in 26,000 cases with ether, from a total of 151,000 cases of anesthesia (*Sem. Méd.*, 1894, p. 202). In statistics of surgical treatment of hernia, there were 68 deaths in 1,733 cases treated, a percentage of 3.9. This is higher than it should be, as many deaths were due to pre-existing complications. The methods of Bassini, Czerny, Macewen and Kocher were followed, with a preference for Bassini's.

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SATURDAY, FEBRUARY 29, 1896.

## DR. THOMAS DOVER, THERAPEUTIST AND BUCCANEER.

In the *London Lancet* for January 4, DR. WILLIAM OSLER, of the Johns Hopkins University, gives an interesting historical contribution concerning the Seventeenth Century physician who gave to the world the immortal Dover's powder. According to DR. MUNK, librarian of the Royal College of Physicians of England, quoted by DR. OSLER, DR. DOVER was a Bachelor of Medicine of the University of Cambridge, but the name does not appear on the list of graduates. THOMAS DOVER was born in Warwickshire about 1660, and after studying at Cambridge and with the famous DR. SYDENHAM, settled down at Bristol, for centuries the home port for adventurers, privateers, and slave traders. He was nearly fifty when he joined in a commercial and piratical venture with a number of Bristol merchants. Two ships, the *Duke* and the *Duchess* were fitted out for a voyage to the South Seas, from which WILLIAM DAMPIER, the circumnavigator of the world, had brought wonderful tales of Spanish riches. DAMPIER, who had come to grief in his last expedition to those regions, was taken along as pilot, while DOVER went as third in command to CAPT. ROGERS, and appears in his narrative as CAPT. DOVER. The expedition was memorable for two events. On Feb. 1, 1709, the ships arrived off the island of Juan Fernandez, and CAPT. DOVER was sent ashore in the pinnace, brought back with him to the ship a couple of days later a man clad in goat skins, who had been left on the island four years and a half before. This was ALEXANDER SELKIRK, the original Robinson Crusoe. Later the expedition sailed up the South American Coast, and found what it was seeking in the two cities of Guayaquil, which it attacked and sacked. DOVER led the van, and cured the sailors of the plague which broke out after the capture of the cities. After cruising in the Pacific for another two years for the Spanish treasure ships they returned to England in 1711, having collected plunder to the value of $850,000. DOVER'S share made him a wealthy man, and left him free to wander about the world for some years.

He settled down in London as a physician in 1731, carrying into his practice the pugnacious habits of his buccaneer's life. To attract public attention, he published his book, "The Ancient Physician's Legacy to his Country; being what he has collected himself in forty-nine years of Practice; designed for the use of all Private Families." The book ran through eight editions, the last apparently being published in 1771. On page 18, on the section of gout, is given the formula for his famous powder:

"Take opium one ounce, saltpetre and tartar vitriolated each four ounces, ipecacuanha one ounce. Put the saltpetre and tartar in a red hot mortar, stirring with a spoon until they have done flaming. Then powder them very fine; after that slice in your opium, grind them to a powder, and then mix the other powder with these. Dose from forty to sixty or seventy grains in a glass of white wine posset going to bed, covering up warm, and drinking a quart or three pints of the posset; drink while sweating."

The publication of the book made a great noise, and brought DOVER into many quarrels with his fellow practitioners, who treated him as a quack, as they did SYDENHAM, for that matter. He carried on a bitter war against apothecaries, too, and died in 1742. His powder is still in the British pharmacopeia.

## THE BRITISH ARMY MEDICAL OFFICER.

At the closing exercises of the seventy-first session of the Army Medical School, Netley, England, the prizes were distributed to the student officers by the Adjutant General to the Forces, GENERAL SIR REDVERS H. BULLER. The officers constituting the staff of the school and of the Royal Victoria Hospital were present, the principal medical officer, SURGEON MAJOR GENERAL GIRAUD acting as Chairman. The Director General of the Army Medical Department, SIR W. MCKINNON was prevented by sickness from attending. Nine candidates on probation for the British Medical Service and eighteen for the Indian Medical Service passed the examinations which determined their final positions in order of rank. According to the report of the proceedings in the *Lancet* of February 8, the address of the Adjutant General did not create a favorable impression on the medical men present. He eulogized the profession of medicine and urged the young officers to be proficient in this their special work; and on the whole he gave the impression that

the professional qualification was the only one which would be regarded at headquarters in the consideration of promotions and rewards. An address of this character would have been all very well forty years ago, prior to the organization of the Army Medical School; but when it is organized, as it is now in all armies, that the ever present duty of the Medical Staff is to prevent sickness and preserve the efficiency of the fighting force the address of SIR REDVERS BULLER must be regarded as that of one who has not progressed with the age in sanitary matters but has retained the view which prevailed up to the time of the Crimean War that a doctor was of use only to cure the sick. Every military medical officer should be a good doctor, but he must be something more than this to enable him to perform the various official duties required of him; and as it was to fit him for the performance of these very duties that the Army Medical School was organized the address of the Adjutant General was particularly unsympathetic and in fact inappropriate to the occasion. Fortunately, in the United States the status of the medical officer is defined by the intelligence of the country as expressed by Congressional legislation. Fortunately also, our military officers are progressive, so that such an address by the Adjutant General or any other military officer of our Army would be an impossibility. We remember the kindly welcome which LIEUTENANT GENERAL SCHOFIELD gave to the student officers of our Army Medical School at the close of its last session and how he took occasion to impress upon them the importance and responsibilities of their position as sanitary officers, showing at the same time that by reason of their professional standing no officer of the army came into more intimate and friendly relations with others than the officers of the Medical Department.

## THE ALLEGED FREQUENCY OF INSANITY AMONG FARMERS.

A homeopathic alienist down east has the credit of making the suggestion that early rising is a potent cause of insanity and is accountable for the undue prevalence of that disorder among the farming community, who are notoriously given to the practice that the old nursery rhyme so mistakenly says makes one "healthy, wealthy and wise." The suggestion contains two propositions, apart from that that early rising is bad for the mental health, viz., that agriculturalists are specially liable to insanity, and that this liability is largely due to this special cause. It is probable that most of us are not very zealous to prove the healthfulness of early rising; we are largely inclined to consider it rather as a necessary evil altogether aside from its unsanitary aspects, and the doctor's theory will be an acceptable one to a large majority. Whether it is well founded or not need not here be seriously argued, but if it has no better foundation than the assumed greater prevalence of insanity in rural than in urban communities, it can not be said to be well supported. The statistics of American, and for that matter of foreign, asylums all indicate that the ratio of the insane to the population is far greater in the larger towns than in small ones or in country districts. Thus DR. E. B. LANE found, in discussing the Massachusetts statistics, that the proportion of insanity was twice as great in the city of Boston as it was in the small villages and rural districts, and that the ratio in the smaller cities was also greater, though less than in the metropolis of the State. Massachusetts is, however, so little of an agricultural State that it may be objected that its data hardly fairly represent the true ratio, and it is as well to take the statistics of those institutions that draw their inmates largely from a farming community. There are some of these that carefully classify their admissions, according to occupations, as well as according to rural or urban residence, and these afford some data for estimating the relative frequency of mental disorders in the agricultural population. Assuming these to be reliable, and there is no good reason for doubting them, we find that even in a State like Iowa, covering a period of over thirty years, during a large part of which the proportion of urban population was small, and which is yet very largely an agricultural community, the farmers and farm hands furnished less than a third of the insane male inmates of the chief asylum of the State. If we take other similar regions the testimony is the same, and when the wives and daughters of farmers are specified as such, their ratio in the asylums is not disproportionate to that of the males. In fact the statistics that are available indicate that the exact reverse of the popular notion, for such it seems to be, is the truth. Physical and mental degeneracy are more the characteristics of crowded centers of population than they are of the comparatively healthy country districts. The general mental and physical sanitary conditions in country dwellings and their surroundings are often bad enough, but there is not the concentration of untoward influences that exists in the cities, and the result is the better for the race. It would not seem needful to point out or emphasize these facts but for the notion that seems to be largely abroad that farmers are specially liable to insanity. It is not a teaching of the psychologic manuals and monographs, nor is it held to any extent by those who from practical experience and study are best able to estimate the causes of mental disease. A number of years ago a prominent asylum superintendent called attention to the monotonous and laborious lives of farmers' wives as conducing to insanity of certain kinds, but he probably did not intend to convey the idea that they furnished any extremely large proportion of the insane. His statements, how-

ever, were reproduced and commented upon again and again in the lay journals, and it is to this in all probability that we owe the rather widespread delusion, for such it has come to be, which has been noted above. The increase of insanity in this and in other countries at the present time goes parallel with the increase of urban population at the expense of the country districts, and there is no valid evidence that agricultural pursuits and country life are in any way in themselves expressly conducive to mental disease. The belief that it is, the expression of which we see from time to time in the lay press and even as above indicated occasionally in medical journals, is due to the misunderstanding and misapplication of what was at best only a partial and rather one-sided observation, which may have been correct under the particular circumstances, but which has no general or universal application.

## TRICHOMONAS AS A PARASITE OF MAN.

Trichomonas belongs to the flagellate infusoria. BUETSCHLE[1] says that about three species of Trichomonas are known. All are parasitic, living in the intestines of frogs, snails and other lower animals, and in the human vagina. Trichomonas vaginale was found in the vaginal secretions of women by DONNÉ[2] in 1836. While DONNÉ's observations, though at first criticised, were finally accepted as true, yet it may be said that the parasites have been deemed of so little importance that they have until very recently received only scant notice.

DOCK,[3] of Ann Arbor, has just published a careful review of the literature bearing on this parasite in connection with the report of an extremely interesting case in which the trichomonas was found in the urine of a man. DOCK's case seems to be the third undoubted case of this kind in the order of publication, and the first in this country. MARCHAND[4] described the first case in which the host was a man, aged 60 years, who had a perineal fistula following suppuration in the pelvis. Pus appeared suddenly in the urine, in the sediment of which MARCHAND found curious hyaline bodies, which proved to be flagellates. A very short time after publishing his own case, he received from Dr. MIURA[5], of Tokio, an account in manuscript of a second case in which trichomonads were found in the urine of a man, aged 52. In this case the organisms came from the urethra. Similar flagellate organisms were found in the vaginal secretions of the patient's wife and thus the source of infection became reasonably clear.

DOCK's[6] case occurred in a man, aged 27, who had been suffering with frequent urination ever since 1884, at which time he had a "congestive chill"; he was then living in Texas and was frequently attacked with malaria. In 1892 he had pneumonia and during convalescence painful and frequent urination was marked, the urine becoming very bloody. The bleeding soon ceased but dysuria continued, exacerbations occurring at irregular intervals. At the end of urination whitish particles are passed with the urine. When examined by DR DOCK caseous-like bits were observed in the urine made up of pus corpuscles, bladder epithelium of all kinds, and a number of animal parasites which were subjected to careful and repeated study with the result that they were determined to be trichomonads. In size the parasites were found to vary from 15 to 22 m.mm in length and 10 to 15 m.mm in width. The typical form is a pyriform or broad spindle with one end rounded. The outlines are usually sharp, the structure finely granular, sometimes hyaline, rarely coarsely granular. A differentiation into ecto- and endo-plasm can usually be made, the inner layer having a finely vacuolated appearance when examined by high powers. The parasites were hard to stain; killed by sublimate in methylen blue solution or stained alive in acetic carmin, a nucleus appears which can not be seen in unstained preparations. In acetic carmin the nucleus appears as a long, narrow, somewhat irregular body about one-fourth to one-third the length of the organism. At the anterior end of the parasite are the flagella which are four in number and from one to three times the length of the body. Often the posterior end of the body is prolonged into a long tail-like process that seems to be due to a soft pseudopod, which is frequently adherent to various neighboring objects. In many organisms an undulating membrane is present that extends from the insertion of the flagella backward usually for about two-thirds of the body. DOCK did not find any sign of a mouth or other digestive organs.

Among the physiologic characteristics of the parasite may be mentioned motion, the phenomena of which are very interesting. Parts of the body may contract, lobes may be projected, but truly characteristic ameboid movement is not present. Pseudopods may form and move at any part of the body. These pseudopods seem to act as organs of support, the animal making abrupt, rapid, bobbing movements resembling that of a duck diving for food, the flagella and membrane being then in active motion. The flagella are capable of a whip-like motion, but may also present moving spiral waves. In an incubator the parasites were found to remain alive for six to seven hours; at room temperature they die an hour or two earlier. The organisms occur only in acid urine. Efforts to cultivate the trichomads anaerobically failed. Animal inoculations also failed.

Reproduction is regarded as occurring by longitudinal division in all flagellates. The mode of infec-

[1] Bronn's Klassen und Ordnungen des Thierreichs, Bd. I, Protozoa.
[2] Comptes Rendus de l'Académie des Sciences. 1836, Tome III, p. 385.
[3] American Journal of Medical Sciences, January, 1896.
[4] Centralbl. für Bakt. und Parasit., 1894, Bd. XV, p. 709.
[5] Centralbl. für Parasit., 1894, Bd. XVI, p. 67. [6] Loc. cit.

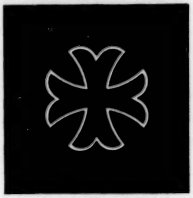
tion is not known. In DOCK's case the facts point to an indirect entrance into the urinary tract.

Have these organisms any pathogenic powers or are they simple "commensals?" DONNE[7] thought the trichomonas vaginale characteristic of vaginal blennorrhagia, but later he concluded it had no specific importance. SCANZONI and KŒLLIKER[8] did not believe the parasites had any pathogenic power. The prevalent opinion among recent writers is that the organisms in the vagina are "commensals." The intestinal parasites of this group can, it is thought, keep up a diarrhea. EPSTEIN[9] shows that some of the intestinal flagellates can produce diarrhea.

In MARCHAND's and MIURA's cases the flagellates were associated with bacteria, but in DOCK's case the conditions were simpler. In his patient the process was distinguished by an exudation of leucocytes and epithelial desquamation without any sign or history of stone and no evidence of any bacterial infection. The urine was invariably sterile as regards bacteria. The conclusion consequently seems warranted that the parasites produced the anatomic alterations. The hematuria which was present in DOCK's case shows that trichomonas can not be left out of consideration in future investigations of this important subject, concerning the malarial nature of which there is always much discussion in our malarial districts.

## INSIGNIA OF THE MEDICAL DEPARTMENT U. S. A.

The board of officers of which COLONEL CHARLES H. ALDEN, Assistant Surgeon General, U. S. A. is president, convened some time ago to consider and report on the insignia of the Department to be worn on the shoulder knots of the full dress uniform and on the collar of the fatigue blouse instead of the shield in gold worn at the present time, has concluded its labors and rendered its report and recommendation to the Surgeon General. The board called for suggestions from medical officers of the Army and of the National Guard, all of whom showed the greatest interest in the subject. Many in reply sent drawings of their views of the appropriate insignia, and not a few forwarded their propositions in gold embroidery on dark blue cloth or braid. The board was at first embarrassed by the multiplicity of the suggestions; but on careful consideration it was found that about ninety per cent of the replies were in favor of a cross as opposed to any other devices, and a larger proportion called for a cross in gold or in gold embroidery than for the Red Cross of the Geneva Convention which is worn upon the arm brassarts in times of war. As expressing the views of the majority the board decided on recommending a cross, differing somewhat from that of the Knights of St. John, of the accompanying form, seven-eighths of an inch over all, in dead gold bullion with plain center. It is understood that SURGEON GENERAL STERNBERG has



Seven-eighths inch over all; dead gold bullion, plain center.

approved the report of the board and submitted its recommendations to the SECRETARY OF WAR. On the approval of this functionary the cross will become the regulation insignia of the medical officers of the Army. The Medical Departments of the National Guard will no doubt remodel their insignia, and in progress of time this cross will have as intimate an association with the military surgeons of modern times as that of Malta has in history with the Hospitaler knights of nine hundred years ago.

[7] Loc. cit.
[8] Beiträge zur Geburtskunde, Bd. II, 1855.
[9] Prager Med. Wochenschrift, 1893, Nos. 38, 39, 40.

## THE ATLANTA MEETING.

The members of the ASSOCIATION will find the Annual Announcement of the Permanent Secretary in this issue. Every indication points to a large and successful meeting. Gentlemen from the Northwest attending the meeting will find it pleasant to join the JOURNAL special train, which will leave Chicago May 3, arriving in Atlanta Monday afternoon, May 4.

# CORRESPONDENCE.

### Concerning Lombroso.

BRECKENRIDGE, MO., February 20, 1896.

*To the Editor:*—Having carefully read your editorial on "The Italian School of Criminal Anthropology," in the JOURNAL of February 15. I can not resist the impulse to write you a few words of congratulation for your able and elaborate defense of Professor Lombroso and his modern science of criminology. The Italian professor, as the founder of the new science of criminal anthropology, has been severely criticised by many of our alienists and optimists of religion and science; but it was not surprising that the views he enunciated, relating to problems of no ordinary difficulty and complexity, should meet animadversion and strictures, even among our thoughtful men. You are doubtless correct in saying, "that much that is felt by excellent men on this subject is prejudice (if the word is not too severe) springing from a superficial knowledge of the works of the Italians themselves and their coadjutors in France and Germany." Prejudice is the first-born of ignorance and never outlives its father. Professor Lombroso has taught us that the criminal is worthy of study and almost everybody, at the present time, is at least in accord on the point that he is an abnormal person, both mentally and physically, whose responsibility should be considered from another point of view than that to which we had been accustomed in former times. In regard to these abnormal peculiarities of the criminal, the following terse and vigorous language of Dr. Elam ("A Physician's Problems") meets with my hearty ap-

proval: "I do not hesitate to say that these constitutiona defects may be (and *daily are*) so combined as to produce *almost* complete irresponsibility under a rational system of judgment; even in cases where the intellect, *such as it is*, remains coherent, and its possessor is accounted sane. Hence arises, in great measure, that strange insoluble problem of our race, the existence of what are called the 'Dangerous Classes,' a people who seem set apart to fill our jails, our penitentiaries, our houses of correction, and penal settlements; a people at war with their kind, natural enemies of their brethren; a leaven leavening, and infecting and drawing into the vortex of its own corruption even the comparatively sound elements of society; the pariahs of humanity, the despair of philanthropists, the approbriums of legislation. It will not be by constantly repeated corrections that these classes will be reformed—'Why should ye be stricken any more? Ye will revolt more and more'—but by a patient repetition of the means by which man as a race, has been civilized." This new conception of the criminal which is in a fair way to change our ideas and customs regarding criminal justice, is due almost entirely to the agitation provoked by Professor Lombroso and his pupil, Dr. Max Nordau, by his celebrated work on "Degeneration." The readers of the JOURNAL are under many obligations to you not only for your many valuable editorials, but for the many important improvements in it during the last year.

Yours truly, M. BOTTOM, M.D.

### Has Edson Scooped the Record?

TECUMSEH, MICH., Feb. 18, 1896.

*To the Editor:*—The following clipping is taken from the Detroit *Free Press* and certainly speaks very plainly for itself:

"To PHYSICIANS IN REGULAR PRACTICE will be sent free by mail a sample bottle of Dr. Edson's Aseptolin, the new discovered treatment for consumption, etc., together with Dr. Edson's paper, reprinted from the New York *Medical Record* of Feb. 8, 1896. Those who have patients suffering from consumption are urged to test this remedy. None but physicians can use it. Address, etc., etc."

We are living in a decidedly fast age.

Respectfully, J. F. JENKINS, M.D.

### Information Wanted.

DETROIT, Feb. 25, 1896.

*To the Editor:*—Will you kindly inform me through the JOURNAL what the requirements are for the practice of medicine in Minnesota? If there is a State Board, and the address of the Secretary? How often and where the examinations are held? You will greatly oblige your reader,

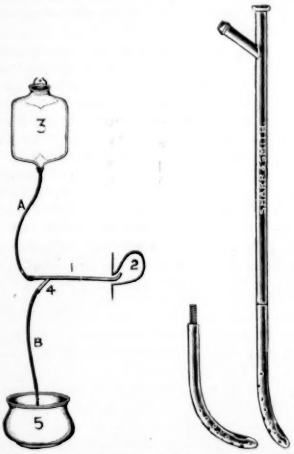
297 Brush Street. R. Y. FERGUSON, M.D.

## NEW INSTRUMENTS.

### A NEW BLADDER IRRIGATOR.

BY J. M. G. CARTER, M.D., PH.D.
WAUKEGAN, ILL.

The instrument here described was prepared to meet the requirements of some cases of vesical catarrh. The simplicity of the apparatus is its chief feature, yet it meets all the indications where douching or washing out the bladder is desired. It consists of an ordinary No. 9 metallic catheter, jointed, so that a male or a female point can be attached as required. The points are perforated to facilitate the inflow and outflow of the water used in the douche. Near the end of the stem is a reflow-pipe, as indicated in the diagram. It is thus used: The irrigator, 1, in diagram is introduced into the bladder, 2; a fountain syringe, 3, is filled with the solution the physician wishes to use and the tube, *a*, attached to the irrigator, 1; a rubber tube, *b*, is attached to the reflow pipe, 4, and passes to a vessel under the bed. The rubber tube, *b*, is closed by the pressure of the fingers or by a clip like those used on the tube of an ordinary fountain syringe tube: the tube, *a*, is opened by removing the pressure, and the fluid flows into the bladder. When the viscus is full, tube, *a*, is closed and tube, *b*, opened. In this manner by refilling and emptying the bladder as thorough washing as is desired in catarrhal and calculous conditions can be quickly and easily accomplished. The fluid in this method touches all parts of the vesical wall. The degree of pressure can be readily controlled by elevating or lowering the fountain bag, and the same act will control the effect of the impact of the water on the wall of the bladder.




The instrument is made by Sharp & Smith, 73 Randolph St., Chicago.

## PUBLIC HEALTH.

**Camel's Flesh for Paris.**—The Algerian butchers, says the *Petite Republique*, of Paris, have made a contract with two Paris houses to supply a large quantity of camel's meat, which will be sold in the capital during the carnival time. According to the official report of the Algerian sanitary inspector, the meat resembles that of the ox, but is not so fine in its fiber. It is as tender and as nutritious as veal. The camel's hump has been esteemed by the *gourmet* as an especially dainty morsel, so toothsome as to cause regrets when the last mouthful is eaten.

**Preventive Vaccination of Cattle.**—Prof. Hutyra's report on the diseases among cattle in Hungary during 1894, is a grand testimonial in favor of preventive vaccination in epizootics. The mortality from the anthrax diseases has fallen from 5 per cent. in cattle to 0.024 per cent. and from 10 per cent. to 0.032 per cent. in sheep. Swine plague is the special scourge of the Hungarian farmers, and they are correspondingly elated to find that preventive vaccination has reduced the mortality from 20 per cent. to 0.28 per cent. in hogs. Six hundred and eighty-one thousand one hundred and eighteen hogs were vaccinated, 222,684 sheep and 110,739 heads of beef.

**Rabies in England on the Increase.**—According to a report quoted in *Public Health*, rabies became very prevalent in England in 1889, particularly in London and the surrounding counties, and in the more densely populated parts of Lancanshire, Yorkshire and Cheshire. During that year no less than 312

cases among dogs were reported to the authorities, but, so soon as suitable muzzling regulations were brought into operation, the number of cases suddenly fell, until in 1892 only 38 were reported. In January 1894, nine cases among dogs were reported. The number became larger month by month, until it amounted to thirty-four in November and fifty-eight in December. The total for the year was 248, against 93 in 1893, and 38 in 1892.

**Reform in Match Factories.**—The French government has appointed a committee to investigate the subject of matches, in the attempt to discover a substitute for the white sulphur now used, which is so injurious to the workmen. There would be no injury from the use of this substance if the public would consent to use what is called the "Army" or "Swedish" match, which will only ignite on a special surface. It is the combination of chlorate of potash with the white sulphur that is so injurious, and in this match, the two substances are kept separate, the chlorate in the match and the phosphorous on the igniting surface. Red phosphorus makes matches which ignite from the slightest friction and burn out inside the boxes, while white phosphorus will not burn without air. The committee appeals to the inventors and manufacturers of the world to join in this attempt to evolve a perfect match with no injurious effects upon the workmen. The *Bulletin de la Soc. de Pharm.* of Bordeaux, December, 1895, contains the detailed account of the committee's experiments with different substances.

**Quarantine Disinfection in New York Harbor.**—Dr. A. H. Doty, the health officer of this port, has devised a plan for disinfection which has been highly recommended by the national health officers and will be put into operation when a bill appropriating $6,000 for the purpose has been passed by the legislature. It provides for the only floating disinfecting plant in the world, and is calculated to do away with the long delays which are common in disinfection, besides being much more thorough than the present methods. When Fire Island was purchased by the State a few years ago at the time of the cholera scare, a steamboat was bought, and Dr. Doty has recently taken her to quarantine, with the view of utilizing her on his new plans. When the steamboat is ready for use, she will steam out to any ship where disinfection is necessary and make fast. The sailors and passengers will be transferred to her, and the work begun at once. The entrance to the disinfecting quarters will be in the afterpart of the boat, there being a little corridor with a door on each side, the women using the entrance on the left, and the men that on the right. In the two rooms they will remove all of their clothing, which will be placed on a tray, which will be run into a heated chamber where the temperature will be raised above 220 degrees, and remain there for an hour. In the meantime the owners of the clothing will go into bathrooms, where they will get a shower of salt water, followed by a plunge in fresh water, all of which will take about ten minutes, after which pajamas will be furnished to the men and woolen gowns to the women, and they will wait the rest of the hour for their clothing. After dressing they will go on deck to await the disinfection of the ship bedding, etc., which is to be carried on at the same time; the bedding being placed in the heated chamber on steamboat, and the ship being washed down with bichlorid of mercury solution, and smoked with the fumes of burning sulphur. It is expected that all this work can be done in a few hours with a ship of moderate size, and that in any case the delay will not be more than two days.

**Mortality of New York State in 1895.**—By a summation of the twelve monthly bulletins of mortality, published by the State Board of Health, the very large total mortality of 121,735 is arrived at for the year. This is 3,500 more than in 1894, but less than any previous year since 1890. Delayed returns not recorded in the Bulletin, to the number of 4,500 deaths, make the actual reported mortality for the year 126,235. The estimated reported population is 6,650,000 which makes a death rate for the year of 19.00 per 1,000 population; in 1894 it was 18.75; in 1893, 19.50; in 1892, 20.78; in 1891, 21.43; and in 1890, 19.65. There was an average daily mortality of 336, against 324 in 1894, and 340 in 1893. The Maritime district had a death rate per 1,000 population of 21.20; the Hudson Valley, of 18.70; the Mohaw Valley, the East Central and the Lake Ontario and Western districts, each of about 15.50, while the other more sparsely settled and perhaps not fully reporting districts have a rate of from 12.00 to 13.40 deaths per 1,000 population. The mortality under the age of 5 years was 34.5 per cent. of the total; for the past six years this has varied from 31.6 to 38.6. In the summer months 45.5 of the deaths occurred in early life; in the spring 33.1; in the fall 29.5; and in the winter 28.7. The zymotic mortality constituted 16.55 per cent. of the total during the year; in 1894 it was 18.56 per cent. and in preceding years it has been from 17 to 20.60. Typhoid fever caused 1,720 deaths, about 25 per 100,000 population, which has been the rate for several years past. The Hudson Valley district has a higher rate of mortality from it than any other. Diphtheria caused 5,000 deaths, which is less than for several years. Its decrease occurred in all parts of the State, but chiefly in the maritime district where there were 1,200 fewer deaths from it than in 1894. Scarlet fever caused 850 deaths, which is less than half the average yearly mortality from it for the past eight years. From measles and whooping cough the mortality was excessive, and especially in the eastern part of the State, but becoming more generally distributed in the last of the year. Diarrheal diseases caused 9,000 deaths, which is, with little variation, the yearly average in this State. There were 546 deaths reported from cerebro-spinal meningitis, and 406 from malarial diseases, the latter showing a yearly decrease in reported mortality for eight years. From grippe there were 5,100 deaths in the four first months of the year. Consumption caused the usual yearly mortality, a little over 13,000 deaths, and a little more than 10 per cent. of the total deaths.

**Health Reports.**—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Arizona: Hirshaw, February 17, 10 cases.
Illinois: Cairo, February 15, 1 case.
Louisiana: New Orleans, February 8 to 15, 18 cases, 1 death.
Michigan: Detroit, Ionia Township, Imlay Township, Rega Township, Saginaw Township, week ended February 14, smallpox reported present.
New York: Brooklyn, February 15 to 22, 1 case.
Pennsylvania: Finleyville, February 11, 1 case; Gilberton, February 13, 1 case; Maltby, February 17, 1 case; Brookville, February 18, 1 case.

SMALLPOX—FOREIGN.

Alexandria, January 15 to 21, 2 deaths.
Cairo, January 15 to 21, 1 death.
Canton, February 1 to 8, 4 cases.
Corunna, January 25 to February 1, 3 deaths.
Guayaquil, February 1 to 7, 2 deaths.
London, Eng., January 25 to February 1, 74 cases.
Madrid, January 7 to 25, 16 deaths.
Montevideo, January 11 to 18, 1 case.
Nogales, February 8 to 15, 1 case.
St. Petersburg, January 25 to February 15, 15 cases, 3 deaths.
Southampton, February 1 to 8, 1 case.
Swansea, January 25 to February 1, 5 cases.
Taxpan, February 1 to 8, 2 deaths.
Warsaw, January 25 to February 1, 3 deaths.

CHOLERA—FOREIGN.

Austria-Hungary: January 21 to 27, 1 case, 3 deaths.
Egypt: Alexandria, January 15 to 21, 7 deaths.
Russia; December 28 to January 4, 28 cases, 19 deaths; January 25 to February 1, 7 cases, 7 deaths; Kiev (government), December 15 to 21, 12 cases, 6 deaths.

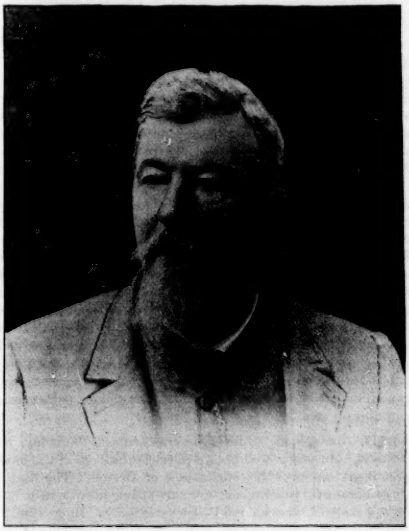
YELLOW FEVER—FOREIGN.

Cuba: Sagua la Grande, February 1 to 8, 3 cases; Santiago, February 8 to 15, 7 deaths.

# NECROLOGY.

JOSEPH JONES, M.D., LL.D.,* of New Orleans, La., February 17. He was born in Liberty County, Ga., in 1833. His father was the Rev. Charles Colcock Jones, D.D., a distinguished Presbyterian divine and author of "God." His maternal grandfather was Capt. Joseph Jones, of the "Liberty Independent Troop," who served in the war of 1812: his great-grandfather on the paternal side was Maj. John Jones, an officer in the Continental Army, who fell before the British lines around Savannah during the memorable assault in October, 1779, and himself connected with the Pickneys, Haines, Swintons and Legarés of the Palmetto State. His early education was in the main acquired through the aid of private tutors at the paternal homes, Montevideo and Maybank plantations, in Liberty County, Ga., and in 1849, when he was 16 years of age, he repaired to South Carolina College, at Columbia. Having completed his freshman studies in this institution, he matriculated at Princeton, in the sophomore class 1850. He received his A. B. diploma from that college in June, 1853. Dr. Jones subsequently entered the medical department of the University of Pennsylvania. Shortly after the award of his doctorate, in 1855, he was elected Professor of Chemistry in the Medical College of Savannah in 1856. In 1858 he became Professor of Chemistry and Geology in the State University, at Athens, and in the following year was called to the chair of Chemistry in the Medical College of Georgia, in Augusta. This office he retained during the period covered by the late war, except when interrupted by active engagements in the field. In 1866 he was tendered the professorship of Institutes of Medicine in the University of Nashville. His connection with that university terminated when he removed to New Orleans, in the fall of 1868. It was there his labors in behalf of the medical department of the University of Louisiana, now Tulane University, began. Dr. Jones was appointed visiting physician to the Charity Hospital of New Orleans, on his arrival in that city. His long service in this capacity has proved valuable alike to the State of Louisiana and to the cause of medical science. He was the chemist of the Cotton Planters' Convention, in 1860, and the compiler and author of the first report submitted to that body touching the agricultural resources of the "Empire State of the South." When the Southern Historical Society was founded in New Orleans, in May, 1869, he became the first secretary of that organization, the framer of its original constitution, and an intense friend of the movement which gave it birth. To his individual efforts the sustenation of its vitality in the infant stage of its history, was to a large extent due. The organization was subsequently transferred to Richmond, Va. The officers of the Southern Historical Society, as first founded in New Orleans, were: Rev. Dr. B. M. Palmer, President; Gen. Braxton Bragg, Vice-President; and Dr. Jones as Secretary and Treasurer. In April, 1880, Professor Jones was made president of the Board of Health of the State of Louisiana, which had been reorganized in accordance with the provisions of the State constitution of the preceding year. His administration of the affairs of the board were characterized by ability, fidelity and industry. In April, 1887, Dr. Jones was elected president of the Louisiana State Medical Society. He bore a prominent part in the deliberations of the Ninth International Medical Congress, which convened in Washington City, in the summer of 1887, and was president of the Fifteenth Section, Public and International Hygiene. In 1890 he was made Surgeon General of the United Confederate Veterans. Dr. Jones was commissioned surgeon in the confederate army in 1862. His duties as such ceased in 1865. For some months prior to receipt of his commission, he had regularly discharged the functions of the office to which he was afterward promoted. As early as January, 1861, he volunteered in the Liberty Independent Troop, and entered upon active service in October of the same year. During his connection with this cavalry troop he acted as surgeon to several kindred organizations doing duty on the Georgia coast.

Professor Jones was a member of leading medical and scientific societies, both in this country and in Europe. His chief claims to recognition rest upon his achievements in the field of original investigation, and upon his reputation as an authoritative and exhaustive writer. Omitting several minor publications, his first production was "Investigations, Chemical and Physiological, Relative to Certain American Vertebrata." It was comprised in the eighth volume of the Smithsonian "Contributions to Knowledge," and appeared in 1856. In the same year his "Physical, Chemical and Physiological Investigations upon the Vital Phenomena and Offices of Solids and Fluids of Animals" was given to the public. This was followed by his "Observations on Malarial Fever," in the *Southern Medical and Surgical Journal*, of Augusta, Ga., for 1858-59, and his



JOSEPH JONES, M.D., LL.D.

"Observations on Some of the Physical, Chemical, Physiological and Pathological Phenomena of Malarial Fever." These latter observations were published in Vol. XII of the Transactions of the AMERICAN MEDICAL ASSOCIATION. Subsequently appeared his "Suggestions on Medical Education;" "First Report to the Cotton Planters' Convention of Georgia on the Agricultural Resources of Georgia," (Augusta, Ga., 1860); "Investigations into the Diseases of the Federal Prisoners Confined in Camp Sumter, Andersonville, Ga.;" "Investigations into the Nature, Causes and Treatment of Hospital Gangrene, as it Prevailed in the Confederate Army" (New York, 1866); "Researches upon Spurious Vaccination in the Confederate Army" (Nashville, 1867); "Sanitary Memoirs of the War of the Rebellion" (New York, 1866-1868); "Molities Ossium" (Philadelphia, 1869); "Outline of Hospital Gangrene in the Confederate Armies" (New Orleans, 1869); "Surgical Memoirs of War of the Rebellion" (New York, 1871); "Observations upon the Treatment of Yellow Fever" (Louisville, Ky., 1873); "General Conclusions

*Abstracted from "Eminent Physicians" by R. French Stone.

as to the Nature of Yellow Fever" (New York, 1873); "Hospital Construction and Organization" (Baltimore, 1875), and "Explorations of the Aboriginal Remains of Tennessee," which was published by the Smithsonian Institution at Washington, in 1876. The last-named represents the author's principal contribution to the science of archeology. Articles and pamphlets discussing the modes of burial, burial caves, earth-works, mounds and relics of the Southern Indians have likewise been furnished by his pen. In the year 1876, appeared the first volume of his "Medical and Surgical Memoirs," containing investigations on the geographical distribution, causes, nature, relations and treatment of various diseases, and embodying results to the attainment of which more than twenty years had been devoted. The concluding volume of these memoirs dates its appearance since 1890. In the second volume are published Professor Jones' latter-day labors and researches, as recorded in a series of monographs, among which his "Physiological Principles of Education and their Scientific Application to the Development and Perfection of Medical Science," takes foremost rank. His observations and researches upon sanitary matters form a unique chapter in the medical history of an eventful period. During his presidency of the Board of Health the quarantine and sanitary measures instituted and perfected by Dr. Jones were effectual in excluding yellow fever from the Valley of the Mississippi. His last important work was published in the JOURNAL last year as a serial, and contains a vast amount of information of the subject of yellow fever, and an almost incredible number of original investigations. Dr. Jones was twice married. In October, 1858 he married Miss Caroline S. Davis, of Augusta, Ga. His marriage to Miss Susan Rayner Polk, a daughter of the Right Rev. Leonidas Polk, Bishop of Louisiana and Lieutenant-General in the Armies of the Southern Confederacy, occurred June 21, 1870. In the same year he went abroad, visiting England, France and Wales, and making a careful tour of the hospitals and museums of those countries. Professor Jones was an earnest student of American archeology and to his reputation as a writer on archeology he had the distinction of being an extensive collector. In times to come, his volume of memoirs, and his last work on yellow fever, will be referred to as a vast storehouse of information on the subjects treated. America has never produced a more earnest student, or a more painstaking and diligent scholar.

L. H. JOHNSON, M.D., died of neurasthenia on Thursday, the 30th ult. He was a well-known physician and one of the most prominent leaders of the colored race of Detroit. The doctor was a successful practitioner, not only among his own race, but among those of German and Polish nationality. He was active politically, but never aspired to office. Until last month he was president of the Douglas Frontier League, a member of the Detroit Medical and Library Association, an Oddfellow, and a member of St. Matthew's Episcopal church. He was born Sept. 16, 1842, in Uniontown, Pa. Through his own efforts he worked up until he became a conductor on the M. C. R. R. He accumulated enough money to push himself through the Chicago Medical College, where he graduated in 1880, ever since practicing in Detroit. He leaves a widow and two sons, Dr. A. H. and W. E. Johnson.

ALEXANDER S. HUNTER, M.D., died at his home in Spuyten Duyvil, New York City, February 14. He was born at Conesville, N. Y., in 1839. He was graduated from the Albany normal school. He then became a trader in Albany and pursued the study of civil engineering. He then went to Great Barrington, Mass., and became professor of mathematics at the Sedgwick Institute. Then he came to this city and entered the New York University Medical College, from which he graduated in 1863, and at once entered upon his career as a physician, opening an office in Broome street. He became consulting physician at the New York Dispensary. He invented Hunter's speculum, which has been much used. He also invented Hunter's forceps. In 1890 he was elected president of the New York County Medical Society. He was the first president to succeed himself since the organization in 1807. For six years he was chairman of the obstetric section of the Academy of Medicine. He was also a member of the New York Medical Society, the State Medical Union, the Neurological and the Medical Jurisprudence Societies.

JAMES E. NOYES, M.D., of Providence, R. I., February 16, aged 79.——C. H. Donaldson, M.D., of Sterling, Ill., February 13, aged 71.——John Howard Ripley, M.D., of New York, February 14.——H. J. Saunders, M.D., of Kingston, Ont., February 19, aged 49.——James A. Holman, M.D., of Pittsburg, Pa., February 18, aged 38.——H. Newberry Hall, M.D., of Chicago, February 23, aged 32.——W. H. Dickie, M.D., of Lincoln, Neb., February 18, aged 83.

## ASSOCIATION NEWS.

### Railroad Rates to Atlanta.

PHILADELPHIA, Feb. 21, 1896.

*To the Editor:*—I just received from the Southern Passenger Association a promise of a fare and a third, on the certificate plan. As this Association has charge of the lines in the locality where we meet, I presume that the others will agree to the same. All who go to Atlanta will pay full fare, and take a certificate of the railroad agent; this is signed by me at Atlanta and by the agent there, who will be at the place of our sessions, and on this a return ticket can be bought for one-third full fare. The AMERICAN MEDICAL ASSOCIATION is pledged to redeem any such in hands of those who were not the original purchasers, and the certificates are not good more than three days after adjournment. Your truly,

W. B. ATKINSON.

For annual announcement see page viii.

## MISCELLANY.

**Where He Was Hit.**—A Baltimorean being injured, was asked if he was hurt near the pelvis. "Why, no," he said, "it was near the monument."

**Prizes for Diligence.**—The late Dr. Duesterhoff, of Berlin, Germany, left in his will the sum of $25,000, as a capital sum, the interest of which is to be used as an encouragement to diligence on the part of the medical students of the university. The half-yearly interest is to be paid as a prize to each of the two students, who, at periods six months apart, is approved as having been the most diligent student in his semester.

**New York University Medical Department.**—The medical faculty of this University has reported in favor of extending the course from three to four years. This action will probably receive the endorsement of the council at an early date, the medical faculty having essentially the entire control of and responsibility for reforms of this nature. It is not impossible that before three years have passed by, all the large medical colleges of New York city will have adopted the four-year system.

**Abortion.**—On an appeal from a conviction of having committed an abortion which it affirms, the supreme judicial court of Massachusetts holds that the averment of pregnancy was in that State unnecessary. If, being alleged, it was necessary to prove it, it was not necessary to go further, and prove that the fetus, at the time of the defendant's acts, had vitality, so that in the course of nature it could mature into a living child. Even if the child had then ceased to have such vitality, pregnancy would not cease till the woman was delivered.

**Hunting a Lost Ball.**—The Roentgen ray and the location of bullets brings to mind an old army story about a general officer, who having been wounded in the fleshy part of the leg, the surgeons made many incisions. At last growing tired and worn with pain, he asked if they were nearly through dressing his

leg. "I am looking for the ball," said the operating surgeon, "Why the devil did you not say so before?" roared the officer, "I have the ball in my pocket."

**A New Thaumaturgic Physician in Germany.**—The physician who is attracting thousands of patients from all over Europe at the present time is Herr Ast, the shepherd doctor, who lives at Radbruch. For a uniform fee of about 25 cents he diagnoses disease by examining a lock of the patient's hair. It is said that his clients wait patiently in line all day to see him, and often, when their number is large, until midnight.

**Public Improvements in Mexico.**—We read in *Progrès Médical* of January 25, that the French Chargé d'Affaires at Mexico has supplied his home government with the detailed information relative to the great public works soon to be inaugurated in the City of Mexico and elsewhere. Among these an entire new system of sewers for the capital is contemplated. The officer asserts that the Mexican government would be pleased to have the French offer their assistance in the new enterprises.

**Hemiplegia in Hepatic Lesions.**—Levi has been studying reflex patellar action during the course of hepatic lesions. Normal in fourteen cases, in eight he found it suspended. He considers this paralysis due to the disturbance in the peripheral nerves which accompanies the lesion, and not to the lesion itself. In one case the right reflex action was exaggerated and in two cases suspended altogether. These facts can be explained by the edematous hemiplegia on the right side in hepatic disorders, described by Hanot.—*Gaz. Méd. de Paris*, January 25.

**Paris Overcrowded with Medical Students.**—There are 6,300 medical students in Paris this year, one-fifth of whom are foreigners. It is difficult to procure cadavers and the facilities of the amphitheaters, etc., are limited to 3,000. In order to relieve this congestion, all the foreigners who ask for their "Equivalence," which is almost equal to a baccalaureate, are informed that it is no longer granted except on the condition that the receiver will leave Paris and conclude his course in some other town or city. The French home students have been protesting most vigorously for some time against being crowded out by outsiders, to whom, they assert, special favors are extended, and further restrictive regulations may be expected. The foreign graduate is no longer allowed to remain and practice in France unless he becomes a naturalized citizen.

**Should not Require Administration of Anesthetics.**—In a personal injury case where the defendant requested the court to make an order requiring the plaintiff to submit to an examination as to the condition of his arm, the latter consented that an examination be made in open court, provided no anesthetics or drugs or harsh methods were used. The physicians appeared to deem it necessary to administer anesthetics in order to make a complete examination. Under these circumstances the supreme court of Michigan holds, Strudgeon vs. Village of Sand Beach, decided Dec. 24, 1895, that the circuit judge was right in refusing to require the plaintiff to submit to the administration of anesthetics.

**The Country Doctor in France.**—The London *Lancet* contains an item illustrative of the trials of the country doctor in France. A young physician settled in a community whose paupers he attended for $10 per annum. One night, soon after his arrival at this Eldorado, he received an urgent summons to visit a patient who lived at a distance of six kilometers from the village. On reaching the cottage it was then 11 P.M.; he found the doors closed and the lights extinguished. In reply to his knocks the door was opened by a sturdy peasant, who laughingly informed him that there was no illness in the house, but that his wife had wished to see if, when anyone was ill, he would come if sent for! The unfortunate medico since died from overwork. The following lines would not be without their relevancy to the unfortunate French country doctor, although they were written for, and to-day are cut upon the tombstone of a Virginia physician:

"He started on his travels,
Many, many years ago,
For the place where life unravels,
And dividing waters flow;
So I hope he has reached the haven,
Where no Anchor ever drags,
And has landed safe in Heaven,
With his shiney saddle bags."

**The Campaign of the French in Madagascar.**—According to an eye-witness, the statistics of this expedition are: Killed by the enemy, 7; wounded under fire, 94; death from disease, 6,000; on the sick list, 15,000. The *Union Médicale* commenting on these sad figures recalls another similar expedition, when Gen. Leclerc left Brest in 1802 for Jamaica with 60,000 men, and the yellow fever killed 50,000 in four months. Of the 10,000 left only 300 ever saw France again, and they did not reach home for seven years later. Since this frightful disaster this century has not witnessed another of the kind until this Madagascar campaign. In 1802 the authorities responsible for it were more unfortunate than guilty, but in 1895 they were more guilty than unfortunate.—*Prov. Médicale*, January 11.

**Arterial Pulse in the Saphenous Vein.**—The *Jour. des Sc. Méd. de Lille*, December 14, reports a case of arterial pulse wave in the inner saphena, which it notes as a curiosity. A woman was being examined for a tumor in the lower abdomen, under the influence of chloroform, and in the obstetric position. Suddenly a wave-like motion was observed on the left limb, following the course of the saphenous vein, which had quite a varicose appearance, and feeling like a pulse to the fingers. It was evidently an arterial impulse, proceeding counter to the current in the vein. As no trace of cardiac nor vascular trouble had been discovered that could explain it, and as it ceased when the limb was in a horizontal position, the conclusion seems evident that the saphena and the artery must have been squeezed together so closely by the tumor and the position of the limb that the arterial pulse wave was communicated to the vein. It could be followed to the calf of the limb and even to the ankle, but never occurred again after that occasion.

**Improper Answer of Expert.**—In a personal injury case, a medical expert was asked to state, from his knowledge as an expert, the treatment and what would be the course of chorea in the plaintiff's case. The witness entered into a general discussion of the disease, the various causes producing it, and some of the possible ultimate results thereof. Nowhere did he state or intimate or express an opinion as to what the course of the disease would be in the plaintiff's case, or the probability or improbability of her recovery. On the contrary, his answer was confined to the possible effects attending the progress of the disease in general, and its probable duration, and the results that might ensue to some person or other afflicted with the disease, and those results dependent on the producing cause of the disease. This the general term of the city court of Brooklyn holds, in Swenson vs. Brooklyn Heights R. Co., decided Dec. 13, 1895, was wrong. It improperly placed before the jury results that might ensue, future consequences that were possible, and on this account the court orders a new trial.

**Record Not Admissible to Prove Sanity.**—In a criminal prosecution, where the defense of insanity is relied on, the supreme court of Indiana holds, Naanes vs. State, decided Jan. 10, 1896, that the record of the proceedings of an examination by a competent commission as to the sanity of the accused is not admissible to show that the latter was sane at the time of committing the alleged offense. The court explains that it may, in reason, be said that a person found upon the inquiry of a commission not to be a fit subject for admission to an insane asylum, may, nevertheless, be of such mental unsoundness as to have immunity from punishment for crime. Furthermore,

if the evidence of the witnesses as recorded in the proceedings of the commission, and whom the accused had no opportunity to cross-examine, should be held to be admissible against him upon the criminal charge, it would manifestly result in a denial of his right, upon his trial, under the constitution, to meet witnesses adverse to him "face to face."

**The Present State of our Knowledge of Diseases of the Spinal Cord.**—Dr. Obersteiner recently addressed the Vienna Doctoren-collegium on this subject, and reviewed the wonderful progress made since the sixties, when the text-books only listed five, and only discriminated between the gray and white matter, where we now distinguish seventeen components. We owe to Nissel and to Weigert's new staining method much of our better information in regard to the more delicate nerves. To Marchi's method is also due Schmaus' discoveries of the changes in degenerate nerve fibers. We have learned how hypnotism deadens organic pain by its stupifying action on the functional system. We know that there is no dividing line between diseases of the peripheral and central nerves, as Landry's disease, for instance, commences with the former and ends with the latter. He enumerates seven inflammatory and seven non-inflammatory primary diseases, with several secondary, and adds "etc." to each. Unfortunately our knowledge how to treat them has not kept pace with knowledge of their pathology. Suspension has proved beneficial in tabes, but not on account of the hyperemia it produces in the spinal cord, as was supposed at first, but owing to the way in which it stretches and loosens the nerve fibers.—*Wiener klin. Rundschau*, January 26.

**Pharmacy Law Changes in South Dakota.**—Section 4, chapter 132, session laws of South Dakota of 1893, headed "Who entitled to be registered as pharmacists," was amended in 1895, to read: "Any person of good moral character and temperate habits who shall pass a satisfactory examination before the State board of pharmacy shall be entitled to a certificate of registration as a licentiate of pharmacy." A law was also passed which provides that any regular graduate over 18 years of age who has received a diploma for the pharmacy course in South Dakota Agricultural College, and who has before or after graduation practiced pharmacy for one year under a regularly licensed druggist in South Dakota in a drugstore where physicians' prescriptions are compounded, shall, upon passing a satisfactory examination by the State board of pharmacy, receive from the board a license entitling him to practice pharmacy in any county of South Dakota; and said board shall grant said license to said applicant without unnecessary delay. Any person who has had one year's work in said pharmacy course and two years' work in an accredited drugstore, shall be entitled to a druggist's license upon passing a satisfactory examination before the State board of pharmacy.

**Gas Asphyxiation Treated by Oxygen Inhalations.**—Before the Canadian Medical Association a case of the above description was reported by Dr. J. W. Shillington, of Ottawa. The principal point of interest, according to the *Montreal Medical Journal*, was in the prompt success following the administration of oxygen when other means were failing. An interesting point was the face becoming black during the inhalation, which he supposed was due to the increased quantity of carbon dioxid formed in the presence of oxygen and circulating in the blood. Dr. T. W. Mills did not agree with the explanation offered by the President. Some years before he had suggested the method of treatment used by Dr. Shillington, but experiments upon animals had shown oxygen to be more efficient than air in cases of asphyxiation. Dr. S. R. McKenzie related the account of a case of an old woman asphyxiated by illuminating gas, who was brought to the Montreal General Hospital in a comatose condition. The patient did not react to the Faradic current. After the forced inhalation of many gallons of oxygen the patient revived in about four hours. About a year previously, Dr. McKenzie stated, a much more favorable case had been lost, a young man who died after twelve hours continuous treatment by artificial respiration and stimulants. He had no oxygen to give him, but he now kept over one hundred gallons and applied it with a nitrous oxid inhaling apparatus.

**Prescriptions for Intoxicating Liquor in West Virginia.**—Under section 7 of chapter 32 of the West Virginia Code, the supreme court of appeals of that State vs. Berkeley, decided Dec. 4, that if a physician gives a prescription to enable one to obtain liquor from a druggist as medicine, either stating that it is, or that he believes that it is, absolutely necessary as a medicine, and not as a beverage when he either knows, or believes, or has reason to believe it is not so necesssary, or when he does not know it to be so necessary, he violates said statute, and is guilty of the offense it creates. The physician must act in entire good faith. It is his duty to examine and ascertain whether the liquor is absolutely necessary as a medicine. And where a prescription names a certain person as the one needing such liquor, when he does not need it, and the physician knows he does not need it; but the person so named is getting it for the use of another, the statute is violated, though that other person may so need the liquor as a medicine. The prescription must name the person for whom the liquor is prescribed.

**Puerperal Tetanus; Argument against Vaginal Douches.**—Drappier writes to the *Jour. des Sc. Méd.*, December 28, describing a case of typical and fatal tetanus commencing nine days after a successful confinement which was progressing rapidly to permanent recovery without the slightest difficulty or complication, and never a trace of fever. Antiseptic vaginal injections had been ordered, phenolized or boiled water, which were carefully administered by the woman's husband. His business brought him in contact with horses, and the tetanus bacillus must have been on his hands or finger nails, or was already in the chamber, which had a direct passageway communicating with the stable. The writer asserts that this case confirms his growing disinclination to vaginal douches after confinement, except in special cases. He quotes Pinard (*Jour. de M. et de C.*, July 10, 1895), who states that they are always useless and frequently a source of danger; also Lucas, Sebilleau and Champonnière. All agree that except in special cases, retention of membranes or fetid discharges, they had better be omitted, especially in the country, where antiseptic precautions are so little understood. In the case above noted, the closest scrutiny failed to discover the slightest abrasion on the woman's body where Nicolaier's bacillus could have infected her, which limited the local seat to the uterus.

**"Disease" or "Bodily Infirmity" in Law.**—An accident insurance policy excepted injuries, fatal or otherwise, resulting directly from "any disease or bodily infirmity." In an action thereon, the jury were instructed that they must accept the word "disease" as meaning some ailment or disorder of a somewhat established or settled character, some physical disturbance to which the insured was subject, and of which the attack that caused his fall was in some manner a recurrence; that a mere temporary disorder, that was new or unusual with him, arising from sudden and unexpected derangement of the system, though it produced or caused unconsciousness, would not be a disease, within the meaning of the policy, and would not exempt the insurance company from liability. This the supreme court of Iowa sustains. Meyer vs. Fidelity and Casualty Co., decided Dec. 13, 1895. It says that it thinks the words "disease" and "infirmity" as used, mean practically the same thing, and should be given no broader meaning when used by an insurance company in a clause of its policy than they are given in ordinary speaking and writing. And, on principle and authority, if the disorder which caused the fall was temporary and unexpected, the injury was "violent,"

"external," and "accidental," within the meaning of these words as used in an insurance policy.

**Unchastity and Credibility.**—For a considerable time the rule permitting a witness to be impeached by proof of general reputation for unchastity was confined, in Missouri, to females. Then the supreme court of that State held, in two cases, that the rule applied alike to both sexes, and that such reputation might be shown to discredit a male as well as a female witness. Now, in the case of State vs. Sibley, decided Dec. 10, 1895, the court, with three justices dissenting, overrules those two cases and reverts to its original position. Especially in a case where the defendant's character for chastity is directly involved, does the court think that such evidence is inadmissible for the purpose of impeaching his character as a witness. It is a matter of common knowledge, the court goes on to say, that the bad character of a man for chastity does not even in the remotest degree affect his character for truth, when based upon that alone, while it does that of a woman. It is no compliment to a woman to measure her character for truth by the same standard that you do that of man's predicated upon character for chastity. What destroys the standing of the one in all the walks of life has no effect whatever on the standing for truth of the other. Quotations are made from Bank vs. Stryker, 3 Wheeler, Cr. Cas. 332, Dr. Johnson and McCauley, to substantiate this.

**Not Attendance of Physician.**—A mere calling at a doctor's office for medicine to relieve a temporary indisposition, not of a serious nature, or his calling at a person's home for the same purpose, the supreme court of Michigan holds, in Plumb vs. Penn. Mut. Life Ins. Co., decided Dec. 30, 1895, can not be considered an attendance within the meaning of a question in an application for life insurance. To constitute an attendance, it must be for some disease or ailment of importance, and not for any indisposition for a day, or so trivial in its nature, such as all persons are liable to, and yet are considered to be in sound health generally. "Sound health," as used in the same connection, it is held, means a state of health free from any disease or ailment that affects the general soundness or healthfulness of the system seriously, and not a mere indisposition, that does not tend to weaken or undermine the constitution of the insured. Having had syphilis at the time of the application, constitutionally or otherwise, and denying it, or representing oneself to be of sound bodily health, will constitute a breach of warranty. Prescriptions appearing to be in a certain physician's handwriting are not admissible in evidence to prove that he treated a person for a certain disease so long as the druggist is unable to state that such person brought them to his drug-store to be filled.

**Modified Privileged Communications.**—The *American Medical Review*, January, has the following medico-legal novelty:

"The question of privileged communications to physicians has recently been before the court of appeals of New York in a new form; an interesting decision thereon has just been handed down. The case, that of Morris vs. the New York, Ontario and Western Railroad Company, came up on appeal, by the railroad company, from the general term, where the plaintiff had had a decision in her favor. Judge O'Brien, of the court of appeals, in his opinion, which was concurred in by the full court, and which reverses the decision of the lower court, holds, that when the plaintiff called one of two physicians who attended at the same examination, to prove what took place, or what he learned, the considerations and reasons on which was founded the statute against disclosure of facts professionally ascertained, no longer existed as to this particular case, and the plaintiff's act operated as a waiver of her right under that statute to object to the testimony of the other physician."

In this connection it may be added that a modified form of privilege will probably soon be put in operation in the courts at the capitol, for it is reported by the press agencies that Senator Morrill has introduced a bill in the Senate providing that in the courts of the District of Columbia no surgeon shall be permitted, without the consent of the person afflicted, to disclose any information which he shall have acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity, whether such information shall have been obtained from the patient or his family, or from the person or persons in charge of him; provided that this act shall not apply to evidence in criminal cases where the accused is charged with causing the death of or inflicting injuries upon a human being, and the disclosure shall be required in the interest of public justice.

## Practical Notes.

**Effects of Ouabain.**—Gley reports to the C. R. Soc. de Biol., January 19, that less than 1-100 m.g. of ouabaïn is enough to produce in the frog's heart absolute systolic cessation of pulsation by the direct action of the poison on the heart. Strophanthin, we know, produces a similar effect. Ouabaïn has also a paralyzing effect on the spinal cord, and is, like strophanthin, a local anesthetic.—*Centralbl. für Phys.*, Oct. 5, 1895.

**Pericarditis Accompanying Gonorrhea.**—Blennorrhagia is frequently accompanied by pericarditis, commencing about six weeks after the former is under way. It does not last long and usually terminates by resolution. A writer in the *Prov. Médicale*, January 11, has been studying this subject and concludes that the pericarditis is not a secondary infection, but merely an extension of the gonorrheal processes, testifying to the important part played by Neisser's microbe and the close relation between the gonococcus and blennorrhagia.

**External Antipyretics.**—The substances used for this purpose are cocain, solanin, helleborin, spartein, or guaiacum, with which the skin is painted after first having been washed with soap and frictioned with alcohol. The most favorable surface for the application is the front upper part of the thigh. The solutions vary in strength, cocain and solanin at 1-20, helleborin 1-100 and spartein 1-20 only. Two to four grams are used at each application.—*Revue Int. de Méd. et de Chir.* January 25.

**Local Treatment of Tuberculosis.**—The *Gazette de Batkine*, 1894, No. 28, describes a case of pulmonary gangrene in a 16 year-old girl with a cavity on a level with the scapula, expectoration fetid and general condition serious. None of the usual remedies afforded relief, and finally an injection of 0.25 c.c. of iodoform was made into the cavity. Immediate relief ensued and general health improved. Twenty injections were made into the cavity, which decreased in size; patient lost her cough and gained in weight, and left the hospital very much benefited by the treatment.—*Journal de Méd. de Paris*, January 19.

**Mentholized Oil in Chronic Pharyngitis.**—Fongueray writes to *Méd. Mod.*, Dec. 18, 1895, recommending the use of a 10 per cent. mentholized oil in chronic cases to relieve the cough and the sensation of a foreign body in the throat. He uses it: Menthol 1 gm.; oil of sweet almonds, 10 gm. The patient dips a water-color brush into this solution and paints the inside of his nostrils with it, throwing the head back and breathing deep. Then with an elbow-shaped handle and larger brush he paints the pharynx copiously with it reaching down as far as possible, and painting up into the nose.—*Revue Internat. de Méd. et de Chir.*, January 25.

**Effect of Strychnin on the Pulsations of the Heart.**—Meyer's experiments with dogs in 1871 convinced him that the sulphate of strychnin retards the action of the heart through its influence upon the moderating center of the spinal cord. Löwit and Richet, since then, reported as their conclusions from a series of experiments on frogs and dogs that the effect of a powerful dose was to annul the influence of the pneumogastric nerve on the heart. Lahousse writes to the *Arch. de Pharmacodynamie*, Vol. 2, No. 1, that he has been experimenting recently with the same animals to settle the question more definitely, and he finds that a 1 to 1,000 solution of sulphate of strychnin applied directly to the heart prolongs the diastole

and thus makes it pulsate less frequently. Careful study of all the phenomena produced lead him to assert that the action of the strychnin in retarding the rhythm of the heart is due to its effect on the intracardiac motor centers.—*Nouveaux Remèdes*, January 24.

**A New Reaction for Antipyrin and Quinin.**—Professor Carrez writes to the *Journal des Sc. Méd. de Lille*, Dec. 14, 1895, in regard to a new reaction of antipyrin and quinin, resulting in a red coloring matter which he calls quinerythropyrin. It is made by adding *eau de brome* to a dilute solution of antipyrin and a quinin salt, until it assumes a slight yellowish tint, then adding ammonia, and the red color is obtained. The same process with quinin alone produces green. It can be taken out of the ammonia and water solution by shaking it up immediately with chloroform, in which it easily dissolves, as also in alcohol, but not in pure water. Acidulated water dissolves it readily and also frees it from the chloroform solution. Acid solutions of the new red produce an orange pink; alkalin solutions, a violet pink. Spectroscopic tests show that it allows all the rays to pass except the green ones. This reaction will be found a useful test to discover antipyrin in the urine, and in toxicology in general as well as in pharmacology.

**Sambucin as a Diuretic.**—The *Journal de Méd.*, Jan. 19, 1896, remarks that in our enthusiasm over the new remedies, we are neglecting the vegetable medicines which often prove best after all for certain purposes. Lecocq has been experimenting with the *sambucus nigra*, whose reputation as a diuretic has been in eclipse lately. Lemoine found that the diuretic properties were in the innermost bark and that it lost them as it became less fresh, so he always ordered fresh bark, a handful boiled in a liter of water, of which the patient took from half a liter to a liter and a half during the twenty-four hours. Lecocq uses the ordinary syrup extract, prescribing 10 to 15 grams a day. According to the formula, this is equivalent to 10 to 15 grams of bark. Administered in this way it supplements the diuretics now in use; it is safe, agreeable, and can be continued a long while. It increases the appetite and also the digestive power. It may supplement advantageously caffein and digitalis and has been known to succed where the former failed.

**Radial Paralysis of the Brachial Plexus.**—*L'Union Médicale* of January 18 contains a careful study of this subject with a review of what investigators have contributed to our knowledge of it; prominent among whom are Klumpke, Duchenne and Erb, and quite recently Raymond. The differentiation is often difficult, as seven other troubles present somewhat similar symptoms. The apoplectic variety is usually followed by incurable atrophy. The reflex always persists a long while, with recovery doubtful. The variety caused by laceration or section of the plexus, is incurable, but obstetric paralysis usually passes away. The treatment is of course first to discover and remedy the injury to the nerve. Revulsion is often useful in paralysis of apparently spontaneous origin, especially if used promptly. But the one main reliance is electrotherapeutics. It requires perseverance for months at times, and this is the *sine qua non* of success. The electric treatment must not be limited to the nerve, but applied also to the muscles to restore their contractility and retard the reaction of degeneration, while favoring their nutrition, as they undergo rapid dystrophic changes when no longer under the control of their trophic centers.

**Symptomatic Paroxysmal Tachycardia.**—Desplats had a patient come to him at intervals during the last two or three years, with every clinical indication of paroxysmal tachycardia, which were each time relieved by digitalis. The man had worked for twenty-three years for the same firm without ever losing a day before he first applied for treatment, and he had no bad habits. The last time he came to the hospital, he died in a couple of hours, without speaking. The necropsy showed that death had been caused by acute pneumonia, but the heart and pleura had grown together in such a way that at each systole the heart had to drag the neighboring organs along with it; a case of true mediastino-pericarditis. There were also evidences of an old endocarditis and abnormal adherences in the abdominal region, and also around the stomach, in which a cancer was found, as large as the palm of the hand. With all these lesions, the clinical picture was that of typical paroxysmal tachycardia, which is *not* relieved by digitalis as this case was. Desplats suggests that digitalis may thus be found valuable to differentiate symptomatic from true tachycardia.—*Journal des Sc. Méd. de Lille*, January 11.

**Modern Treatment of Metritis.**—Douriez has just published a work with this title, which the *Jour. des Sc. Méd. de Lille*, Dec. 28, 1895, commends and quotes as follows: In acute cases, absolute repose in bed, "as for a fractured thigh," vaginal irrigations; if blennorrhagic, dilation of the uterus and iodoform pencil or swab; if puerperal, scraping (Pinard) or continued intra-uterine injections (Budin); if chronic, copious vaginal douches for three days, mechanical dilation of the uterus for five or six days; cleansing of the uterine cavity and insertion of a large drainage tube, size of a thumb. This is removed a few minutes every other day to make an application of iodin inside the uterus. After three of these applications have been made the drain is removed and replaced by a vaginal tampon left for four days. This treatment lasts for twenty days, when the patient may leave her bed. Any special treatment indicated by the neck of the uterus or the pelvic basin must be studied also.

**Treatment of Chronic Gonorrhea in the Male.**—To prevent an acute attack of gonorrhea from leaving an inflammation of the urethra which may become chronic, Janel aborts it in the acute stage with potassium permanganate. The parts should be thoroughly cleansed with this to remove all the gonococci and prevent any secondary infection. To ensure the latter a dilute solution of sublimate should also be used. Superficial and fresh lesions in the bladder should also be treated with careful washings, and also with a solution of nitrate of silver administered a drop at a time. Not until this has been done and the infective germs thus destroyed, is it proper to commence the instrumental examination. Superficial and fresh lesions of the urethra and bladder are treated with washings, etc., as above; deeper and old lesions with dilatation besides; localized inflammations with the urethral endoscope. Both parts of the urethra must be treated, even when only the penile portion shows any lesions.—*Ann. des Mal. des Org. g. u.*, No. 6, quoted by *Centralbl. f. Chir.*, Jan. 25, 1896.

**Serum Treatment of Erysipelas.**—The official report of the erysipelas hospital at Paris for the past year, is an interesting contribution to our knowledge of serotherapeutics. Patients were treated by different methods, but the percentage of cures was very much larger with the serum treatment. When the supply of serum ran short, the cures grew less. When an abundant supply was on hand the mortality fell to 1.03 per cent. Total number of patients treated, 1,055; with serum, 501. Large doses of serum proved most effective; one patient with purulent pleurisy had 300 c.c. injected in a fortnight without the slightest inconvenience from its use. The average dose is 20 to 40 c.c. and the beneficial results are directly proportionate to its preventive strength. The general health improves after first injection; delirium and nervous symptoms disappear; fever rarely persists as long as two to three days; pulse grows at once less rapid and stronger; if albuminuria is not present it does not develop, and it is cured where it exists, in forty-eight hours at farthest. Small doses of the serum, when a relapse threatens, prevent it in many cases.—*Rev. Internat. de M. et de C.*, January 25.

**For and Against Antipyretics.**—The last meeting of the Paris Société de Therapeutique was enlivened by a discussion of the

value of these remedies. One member announced that Charrin's recent experiments tend to show that it is best not to combat the fever, at least in septicemia, as it helps the organisms to resist the intoxication. Others recounted Richet's recent experiments, which seem to prove the reverse, viz., that by lowering the temperature the animal could support much larger quantities of poison without intoxication than at the normal temperature. Weber responded by the experience obtained from injecting artificial serum in certain peritoneal troubles which depress the temperature below normal. The injections brought it back to normal and above, and the patient is saved. Some believed with Charrin that antipyretics have a pernicious effect on the vital processes of the cells. Vogt mentioned that he had obtained the maximum of antithermic results with the least possible chance of toxic complications, by the use of the following:

℞ Antipyrin. . . . . 2.50
Phenacetin . . . . . 1
Acetanild. . . . . .50
Misce.

To be made into eight powders. Four to be taken in one day as largest amount.—*Revue Internat. de Méd. et de Chir.*, January 25.

**Apparent Cure of Phthisis Treated by Neurotic Remedies.**—In the *University Medical Magazine*, December, Dr. William Pepper reports a case of phthisis, the treatment of which was signalized by a complete omission of all purely routine pulmonary medication, and by the apparently satisfactory result. Strychnin nitrate (1-100 of a grain) with atropin sulphate (1-1,000 of a grain), was administered every two hours hypodermically, together with strychnin nitrate (1-50 of a grain) and the double chlorid of gold and sodium (1-12 of a grain), by mouth every two hours. After a few days the dose of the latter was increased (1/8 of a grain). Egg albumin was well borne and this was increased until two dozen eggs (whites) were consumed per day. Cod-liver oil inunctions and passive massage were employed once daily. When the patient showed signs of strychnin intoxication the dose was reduced. Dr. Pepper's conclusions are summed up by himself thus: "The notable points in this case are: The sudden onset, quite like general miliary tuberculosis; the large number of bacilli; the rapid recovery, all the more remarkable with a pronounced tubercular family history; the complete disappearance of consolidation and bacilli; the acute reappearance after two years of the whole train of symptoms, with signs in the base of the left lung directly following an attack of pneumonia located in that vulnerable part; the large number of bacilli and their early complete disappearance in the second attack; the abatement of the consolidating process, and rapid recovery of the general health after the second attack; the absence from the treatment of all cough-medication and antiseptics, and the large dose of strychnin nitrate and the double chlorid of gold and sodium, with which the system was kept literally saturated."

**The Surgical Treatment of Retro-Deviations of the Uterus.**—Augustin H. Goelet, M. D., in a paper upon this subject read before the State Medical Society and the Society for Medical Progress, New York, declared that displacements of the uterus demand more careful consideration than is usually accorded them, and that the routine plan of inserting a pessary and dismissing the case from further attention is a serious error. He thought that the majority of cases, especially those of long standing where structural changes have taken place in the wall of the organ require surgical intervention for their cure. The pessary alone is not sufficient except in recent cases, because of the concomitant metritis and endometritis which must be overcome before a radical cure can be effected. After discussing the merits of Alexander's operation and the intraperitoneal methods of shortening the round ligaments and vaginal fixation he described a method which he had employed with success for the past twelve years. The Alexander's operation which is only appropriate in movable retro-deviations is unnecessary, its chief disadvantage being the length of time it requires and the prolonged convalescence it entails. Where the uterus is fixed by adhesions he advocated opening the abdomen by means of a small incision and suspending it from the anterior abdominal wall, not fixing it. This was preferred to intraperitoneal shortening of the round ligaments because it consumes less time and it had given very satisfactory results. It is preferable to ventrofixation because the uterus is not fixed but movable. Vaginal fixation he thought objectionable because it substituted a fixed anteflexion for a movable posterior displacement. The recent unfavorable reports concerning complication during labor following it affords another very serious objection to this operation. The method of procedure which he advocated in place of Alexander's operation in movable retro-deviations, has this to recommend it, viz., that it aims at a cure of the coëxisting metritis and endometritis, the maintaining cause of the displacement, and requires but a week's confinement in bed. In retroversion he dilates the canal, packs the cavity with iodoform gauze and tampons the vagina with the same gauze in such manner as to throw the uterus into a position of anteversion. This dressing is removed every day the cavity is washed out with a 1 per cent. solution of lysol and it is reapplied. This is done for a week and the patient is confined to bed. Then a vaginal pessary is fitted to hold the uterus in a correct position. The cavity is irrigated twice a week until a healthy endometrium is reproduced. In retroflexion the same procedure is adopted but instead of packing the uterus with gauze he uses a straight glass drainage stem which serves the purpose of a splint and keeps the uterus straight. It is then maintained in a position of anteversion by means of vaginal tampons of iodoform gauze. At the end of a week a vaginal pessary is inserted and the patient is permitted to get up. The success which he has obtained with this method leads him to believe that the other more complicated operations designed for movable retro-deviations are unnecessary.

## Hospital Notes.

The New England Deaconess Hospital at Boston, Mass., was formally opened February 4.——An application has been presented for a charter for St. John's General Hospital, of Allegheny City, Pa.——The annual election of the Saturday and Sunday Hospital Association of St. Louis took place February 17.

## Society Notes.

The Sixteenth Annual Meeting of the Atlantic County Medical Society was held in Atlantic City, N. J., February 5. The following officers were elected for the ensuing year: President, Philip Marvel; Vice-President, W. Blair Stewart; Secretary and Treasurer, Walter Reynolds.——A regular meeting of the Columbus (Ohio) Academy of Medicine, was held in that city February 17.——The annual meeting of the World's Congress of Medico-climatology was held in San Antonio, Texas, February 20, 21 and 22.——The annual meeting of the surgeons of the St. Joseph and Grand Island Railway was held in St. Joseph, Mo., February 20. The following officers were elected: President, Noah Hayes; Vice-President, Robert Dinsmore; Secretary, D. Morton, of St. Joseph.——The annual meeting of the Tennessee State Medical Society will be held in Chattanooga April 13. On account of the excellence of the program the largest attendance in the history of the society is expected.

## Detroit Notes.

The Wayne County Medical Society at its regular meeting Thursday, February 20, listened to a very interesting paper by George Andrew Lewis, entitled, "The Origin of Stammering." Mr. Lewis exhibited before the society sixteen patients which exemplified the methods of his teaching and the results.

At the regular meeting of the Detroit Medical and Library

Association held Monday, February 17, Dr. H. A. Gerry read a paper entitled, "The Gehrung as an Expedient."

HEALTH OFFICE report for week ending Feb. 22, 1896. Deaths under 5 years 35, total 98. Births, male 61, female 51, total 112. Contagious diseases: Diphtheria, last report 9, new cases 7, recovered 2, died 2, now sick 12. Scarlet fever, last report 12, new cases 5, recovered 2, died none, now sick 15. Smallpox, last report 5, new cases 5, recovered none, died 7, now sick 3.

## Washington Notes.

WEEKLY REPORT OF THE HEALTH DEPARTMENT.—From the report of the Health Officer for the week ended February 15, the following observations are obtained: A slight increase in the mortality of the city took place during the past week. According to reports received at the health department, there were 112 deaths, with an annual death rate of 21.13. In the corresponding period of last year, the deaths numbered 103, with a rate of 19.8. There were in the District, at the close of the week, twenty premises placarded on account of diphtheria. During the week twenty deaths occurred from this disease, twenty-one cases were discharged from quarantine, and eleven new cases were reported. Nineteen premises were placarded for scarlet fever, twelve cases were discharged from quarantine and eleven new cases reported. There were no deaths.

PUBLIC HEALTH MEETING.—A meeting of the Board of Trade was held on the 25th inst. The subject for consideration was the public health and sanitation of the city. Addresses were delivered by Drs. S. C. Busey, W. W. Johnston, Geo. M. Sternberg, U. S. A., J. J. Kinyoun, M.-H. S., and others.

MARRIAGE LAWS IN THE DISTRICT TO BE AMENDED.—The Senate bill relating to marriages in the District has brought out much interesting debate on the diversity of marriage laws now in force here. Mr. Hoar offered an amendment forbidding marriages when one of the parties is an alien, unless a minister or consul representing the country of this alien certifies that the marriage is valid according to the laws of that country. Mr. Hoar said his purpose was to protect American women, attractive by beauty and accomplishment, from the rapacity of foreign adventurers, whether titled or untitled. The Senator cited instances of American marriages being repudiated in Germany when the parties returned there. Mr. Hoar's amendment was agreed to, also one making eighteen years the marriageble age for women, also permitting civil as well as religious ceremonies of marriage.

CONTAGIOUS DISEASE LAW INADEQUATE.—Dr. J. M. Parker, who was tried in the police court last week for alleged violation of the contagious disease act, was discharged, the Government failing to establish its case. The judge in dismissing the case said that it was with great reluctance that he had to dismiss the charge, but he had to do so because the law was inadequate to meet the case. He sincerely hoped the law would be amended to cover every phase of contagious diseases, and said that when doctors can not agree the laymen ought to take the matter in their own hands.

MEDICAL SOCIETY.—At the regular meeting of the Society held on the 19th, Dr. McGuire read a paper entitled, "Freaks as Pertaining to Diseases of the Skin," the subject was accompanied with illustrations. Dr. James Kerr reported a case of "Supra-malleolar Osteotomy for Deformity following Pott's Fracture." Dr. Acker presented a case and specimen of tumor of the heart and lungs. Dr. J. Ford Thompson presented a specimen of myoma of uterus and a tumor removed from the submaxillary space.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—At the 241st meeting of the Society Dr. J. F. Scott read an essay entitled, "Gonorrhea in Women." Dr. J. T. Johnson presented a uterus he had removed per vaginam for cancer.

SCIENTISTS DISAPPROVE THE ANTI-VIVISECTION BILL.—The anti-vivisection bill (S. 1552) now in Congress was discussed on the 20th inst., at a meeting of the joint commission representing scientific societies. The joint commission is composed of the officers and executive committees of the seven scientific societies of Washington, *i.e.*, the Anthropological, Biological, Chemical, Entomological, Geological, National Geographic and Philosophical societies, representing a total membership of nearly 2,000. Dr. Charles Dabney, assistant secretary of agriculture, gave a résumé of the anti-vivisection bill, and proposed resolutions, which were unanimously adopted. The resolutions declared "That the joint commission of the scientific societies of Washington, composed of officers of the several scientific societies of the city, most earnestly opposes the legislation proposed by Senate bill 1552, entitled 'A bill for the further prevention of cruelty to animals in the District of Columbia'; that in the opinion of this commission the proposed legislation is unnecessary, and would seriously interfere with the advancement of biologic science in this District; that it would be especially harmful in its restriction of experiments relating to the cause, prevention and cure of the infectious diseases of man and of the lower animals; that the researches made in this department of biologic science have been of immense benefit to the human race; and that, in general, our knowledge of physiology, of toxicology and of pathology, forming the basis of scientific medicine, has been largely obtained by experiments upon living animals, and could have been obtained in no other way; that physicians and others who are engaged in research work having for its object the extension of human knowledge and the prevention and cure of disease are the best judges of the character of the experiments required and of the necessity for using anesthetics, and that in our judgment they may be trusted to conduct such experiments in a humane manner, and to give anesthetics when required to prevent pain. To subject them to penalties and to espionage, as is proposed by the bill under consideration, would, we think, be an unjust and unmerited reflection upon a class of men who are entitled to our highest consideration."

It was decided to send a copy of the resolutions to each member of the committees on the District of Columbia in the House of Representatives and Senate of the United States and to the District Commissioners.

# THE PUBLIC SERVICES.

**Army Changes.** Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from February 15 to 21, 1896.

First Lieut. William W. Quinton, Asst. Surgeon, is relieved from temporary duty at Ft. Logan, Colo., and ordered to Ft. Grant, Ariz., for duty at substation, San Carlos, Ariz., relieving First Lieut. Paul F. Straub, Asst. Surgeon. Lieut. Straub, on being thus relieved, is ordered to Angel Island, Cal., for duty at that post, relieving First Lieut. Charles E. B. Flagg, Asst. Surgeon. Lieut. Flagg, upon being thus relieved, is ordered to Ft. DuChesne, Utah, for duty at that post, relieving Capt. Henry D. Snyder, Asst. Surgeon. Capt. Snyder, upon being thus relieved, is ordered to Ft. Ethan Allen, Vt., for duty at that station.

**Navy Changes.** Changes in the Medical Corps of the U. S. Navy for the week ending February 22, 1896.

Surgeon D. M. Guiteras, detached from the "Montgomery" and granted six months' sick leave.

P. A. Surgeon L. W. Curtis, detached from duty at Indian Head proving ground and ordered to the "Montgomery."

Asst. Surgeon L. Morris, detached from the naval hospital at Philadelphia and ordered to the Indian Head proving ground.

Medical Inspector Dwight Dickinson, ordered as member of the retiring board February 28.

### Change of Address.

Barrie, Geo., from 1269 O St. N. W. to 1355 Cochran St. N. W., Washington, D. C.
Brauns, E., from 416 E. North Ave. to 3 Lincoln Ave., Chicago, Ill.
Rowe, S. B., from 2908 Gamble Ave. to 925 Bayard Ave., St. Louis, Mo.
Sims, S. N., from Philadelphia, Pa., to St. Joseph, Ill.

### LETTERS RECEIVED.

Alma Sanitarium Co., Alma, Mich.; American Sports Publishing Co., New York, N. Y.
Brassell, T. C., Stroman, Texas.
Caldwell, F. D., Sanford, Fla.; Cowan, C. S., Fort Jones, Cal.
Davis, Geo. S., Detroit, Mich.; Drake, Elwood L., Philadephia, Pa.; Drevet Mfg. Co., New York, N. Y.
Eagleson, J. R., Seattle, Wash.
Flint, Eddy & Co., New York, N. Y.; Friend, Samuel H., Milwaukee, Wis.
Hadley, E., Indianapolis, Ind.; Hall, Humes, New York, N. Y.; Harris, Thos. C., Raleigh, N. C. (2); Hawley, D. C., Burlington, Vt.; Henrotin, F., Chicago, Ill.; Hines, F. M., Auburn, Ind.; Hummel, A. L., Adv. Agency, New York, N. Y.
Loewinthan, M., New York, N. Y.
Maltine Mfg. Co., The, New York, N. Y.; Maytum, W. J., Alexandria, S. D.; Menges, Dwight, Milwaukee, Wis., (2); Mewborn, W. A., Macon, Tenn.; Miller, A. B., Syracuse, N. Y.
Nancrede, C. B., Ann Arbor, Mich.; Nicholson, J. L., Richlands, N. C.
Payne, Geo. F., Atlanta, Ga.; Preston, R. J., Marion, Va.; Publishers' Collection Agency, St. Paul, Minn.
Randall, F., New York, N. Y.; Rutland, J. B., Fredonia, Ala.
Savage, G. C., Nashville, Tenn.; Sawyer, W. H., Hillsdale, Mich.; Small Edward H., Pittsburg, Pa.; Smith, S. E., Richmond, Ind.; Stichter, F. G., Louisiana, Mo.
Thompson, R. L., Spokane, Wash.; Turck, Fenton B., Chicago, Ill.
Wells, Geo. F., Nahcotta, Wash.; Wisdom, W. A., Brooklyn, N. Y.